FINAL

U.S. ARMY BASE REALIGNMENT AND CLOSURE 95 PROGRAM

Environmental Baseline Survey Report

Camp Bonneville, Washington

Prepared for
U.S. Army Corps of Engineers
Seattle District

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LIST OF ACRONYMS

ACRONYM	DEFINITION
2,4-D	2,4-dichlorophenoxyacetic acid
2,4,5-T	2,4,5-trichlorophenoxyacetic acid
ACM	asbestos-containing material
AIF	artillery impact fan
AST	aboveground storage tank
ATV	all-terrain vehicle
BCP	BRAC Cleanup Plan
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act, as amended
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CERFA	Community Environmental Response Facilitation Act
CFR	Code of Federal Regulations
CS	o-chlorobenzal-malononitrile
DDT	4,4-dichlorodiphenotrichloroethane
DOD	Department of Defense
DNR	Washington State Department of Natural Resources
EBS	Environmental Baseline Survey
EPA	U.S. Environmental Protection Agency
ERNS	Emergency Response Notification System
FBI	Federal Bureau of Investigation
FINDS	Facility Index System
FORSCOM	U.S. Army Forces Command
FY	fiscal year
GIS	geographic information system
HR	hazardous substance release or disposal
HS	hazardous substance storage
HUD	U.S. Department of Housing and Urban Development

LIST OF ACRONYMS

HVAC	heating, ventilation, and air conditioning
HW	hazardous waste
IRP	Installation Restoration Program
kg	kilogram
LBP	lead-based paint
LUST	leaking underground storage tank
NPL	National Priorities List
OSHA	Occupational Safety and Health Act
OSWER	Office of Solid Waste and Emergency Response
OWS	oil/water separator
PCB	polychlorinated biphenyl
PL	Public Law
POL	petroleum, oil, and lubricants
ppm	parts per million
PR	petroleum release or disposal
PS	petroleum storage
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
RMIS	Resource Management Information System
RQ	EPA Reportable Quantity for Hazardous Substances
SHPO	State Historic Preservation Office
SI	Site Inspection (or Investigation)
TSCA	Toxic Substances Control Act
TSD	treatment, storage, and disposal
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
UST	underground storage tank

LIST OF ACRONYMS

UXO	unexploded ordnance
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act
WTPH-D	Washington total petroleum hydrocarbons as diesel

EXECUTIVE SUMMARY

The Camp Bonneville Military Reservation (Camp Bonneville) is a 3,840-acre installation, located in Clark County, Washington, that has been selected for closure under the 1995 Base Realignment and Closure (BRAC) process. The purpose of this Environmental Baseline Survey (EBS) is to classify discrete areas of real property associated with Camp Bonneville, subject to transfer or lease into one of the seven standard environmental condition of property area types as defined by Community Environmental Response Facilitation Act (CERFA) guidance and the Department of Defense (DOD) BRAC *Cleanup Plan (BCP) Guidebook* (DOD 1993). This is achieved by identifying, characterizing, and documenting the obviousness of the presence or likely presence of a release or threatened release of hazardous substances or petroleum products associated with the historical and current use of Camp Bonneville. Releases at properties adjacent to Camp Bonneville that could affect the environmental condition of the installation property are also identified, characterized, and documented. Additionally, areas containing or suspected of containing non-Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) contamination substances (e.g., asbestos-containing material, lead-based paint) that may limit or preclude the transfer or lease of the property for unrestricted use are delineated separately as being qualified.

The seven standard environmental condition of property area types (categories) are presented in Section 1.3. Areas that are designated as Category 1, 2, 3, or 4 are suitable for transfer or lease, subject to consideration of the qualifiers. Areas that are currently designated as Category 5, 6, or 7 are not suitable for transfer, but may be suitable for lease.

The real property evaluated under this investigation of Camp Bonneville encompasses approximately 3,840 acres that has been identified as BRAC property, subject to lease or transfer.

The installation consists of two cantonment areas, Camp Bonneville Cantonment and Camp Killpack Cantonment, and twenty-five firing ranges. The mission of Camp Bonneville is to provide a training camp for active U.S. Army, U.S. Army Reserve, U.S. National Guard, U.S. Marine Corps Reserve, U.S. Navy Reserve, and U.S. Coast Guard Reserve units, and other DOD Reserve personnel.

The one tenant at Camp Bonneville is the Federal Bureau of Investigation (FBI). The FBI owns and manages training facilities that they constructed at Camp Bonneville in 1995.

To prepare the EBS report, Woodward-Clyde reviewed existing installation documents; federal, state, and local government records; and aerial photographs. A site visit was conducted that included visual inspections of the property and surrounding properties, and employee interviews. Additionally, reasonably obtainable federal, state, and local government records for adjacent properties were reviewed. No sampling activities were associated with this EBS.

The information provided in this Final EBS Report is current as of February 1996; however, comments received from federal, state, and local government agencies on the Draft and Draft Final EBS Reports have been incorporated, as appropriate.

The survey and parcelization of Camp Bonneville identified 25 BRAC parcels based on the environmental condition of the property. Table 5-1a and Figure 5-1 present the BRAC parcels and corresponding categorizations.

The following BRAC Acreage Summary Table presents the BRAC property according to the environmental condition of property category. Of the total 3,840 acres at Camp Bonneville, approximately 3,826.26 acres are designated as Categories 1 and 2. The remaining 13.74 acres of BRAC property are designated as Categories 5 and 7. Additionally, 1.31 acres are designated qualified for asbestos-containing material (ACM) and lead-based paint (LBP), and the entire installation, 3,840 acres, is qualified for unexploded ordnance (UXO) and/or ordnance fragments.

BRAC ACREAGE SUMMARY TABLE
CAMP BONNEVILLE, WASHINGTON

ENVIRONMENTAL CONDITION CATEGORY NUMBER	TOTAL ACREAGE	UNQUALIFIED ACREAGE	TOTAL QUALIFIED ACREAGE	ACM-QUALIFIED ACREAGE	LBP-QUALIFIED ACREAGE	UXO-QUALIFIED ACREAGE
1	3,823.26	0	3,823.26	0.61	0.61	3,823.26
2	3.00	0	3.00	0.60	0.60	3.00
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0.08	0	0.08	0	0	0.08
6	0	0	0	0	0	0
7	13.66	0	13.66	0.10	0.10	13.66
Total	3,840.00	0	3,840.00	1.31	1.31	3,840.00

Note: Acreage figures are approximate; they have been calculated using AutoCad Release 12.

SECTION ONE INTRODUCTION

1.0 Introduction

The Environmental Baseline Survey (EBS) report for the Camp Bonneville Military Reservation (Camp Bonneville) was prepared by Woodward-Clyde Federal Services (Woodward-Clyde) for the U.S. Army Corps of Engineers (USACE) under Contract No. DACA67-95-D-1001, Delivery Order No. 0009. This section describes the purpose and scope of the work conducted in preparing the U.S. Army Base Realignment and Closure (BRAC) 95 EBS report.

The information provided in this Final EBS Report is current as of February 1996; however, comments received from federal, state, and local government agencies on the Draft and Draft Final EBS Reports have been incorporated, as appropriate. The comments and corresponding responses have been compiled in a Comment Response Package that is included as Appendix A.

Camp Bonneville, located in Clark County, Washington, is a U.S. government property selected for closure by the BRAC 95 Commission (Figure 1-1). Camp Bonneville encompasses approximately 3,840 acres. The installation consists of two cantonment areas, Camp Bonneville Cantonment and Camp Killpack Cantonment, and twenty-five firing ranges. It was established in 1909 as a drill field and rifle range. Historically, Camp Bonneville has been used as a training camp for active U.S. Army, U.S. Army Reserve, U.S. National Guard, U.S. Marine Corps Reserve, U.S. Navy Reserve, U.S. Coast Guard Reserve units, and other Department of Defense (DOD) Reserve personnel.

1.1 BRAC Program Overview

Prior to the late 1980s, base closure was a time-consuming and inconsistent process. The Secretary of Defense, in cooperation with Congress, proposed a base closure law to create a process to close bases and bring base infrastructure in line with force structure. Public Law (PL) 100-526, enacted in 1988, created the Commission on Base Realignment and Closure. The law charged the Commission with recommending installations for closure or realignment based on an independent study of the domestic military base structure.

The closure process was refined in PL 101-510, in which Congress created the Defense Base Closure and Realignment Commission. The process identified installations based on eight criteria, including four military value criteria; savings and return-on-investment; and the economic and environmental

impacts of closure. The Commission met in 1991, 1993, and 1995, and its recommendations are currently being implemented by DOD.

The BRAC environmental restoration program is similar to DOD's Installation Restoration Program (IRP), but it has been expanded to include non-Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) contamination substances that are not normally addressed under the IRP, including asbestos-containing material (ACM), lead-based paint (LBP), polychlorinated biphenyls (PCBs), radon, unexploded ordnance (UXO) and/or ordnance fragments, radionuclides, and pesticides.

The Community Environmental Response Facilitation Act (CERFA) (PL 102-426) was enacted in 1992 and amends Section 120 of CERCLA. CERFA directs federal agencies to evaluate all base closure and realignment property to identify uncontaminated parcels and allows the transfer or lease of remediated parcels when the successful operation of an approved remedy has been demonstrated. The CERFA identification process considers hazardous substances and petroleum products.

1.2 PURPOSE AND SCOPE OF ENVIRONMENTAL BASELINE SURVEY

The BRAC 95 environmental restoration program for Camp Bonneville was initiated by conducting an EBS. The EBS included the review of existing installation documents; federal, state, and local government records; and aerial photographs. A site visit, which included visual inspections and employee interviews, was also conducted. Additionally, reasonably obtainable federal, state, and local government records for adjacent properties were reviewed. The EBS report describes the environmental condition of the property and will be used to support determination of the suitability to transfer or lease.

The purpose of the EBS is to classify discrete areas at Camp Bonneville into one of seven standard environmental condition of property area types as defined by CERFA guidance and the DOD *BRAC Cleanup Plan (BCP) Guidebook* (DOD 1993). This is achieved by:

- Identifying, characterizing, and documenting the obviousness of the presence or likely presence of a release or threatened release of a hazardous substance or petroleum product associated with the historical and current use of Camp Bonneville.

- Identifying, characterizing, and documenting the obviousness of the presence or likely presence of a release or threatened release of a hazardous substance or petroleum product from an adjacent property that is likely to cause or contribute to contamination at Camp Bonneville.

No sampling activities were associated with this survey.

1.3 DEFINITIONS

The following definitions are used in this report:

- **BRAC property:** The installation real property that is subject to transfer or lease. Real property includes land and rights in land, ground improvements, utility distribution systems, pipes or pipelines, buildings, and other structures located on the property and affixed to the land.

- **Adjacent properties:** Those properties, on or off the installation, contiguous to or nearby the property boundaries being surveyed that are likely to cause or contribute to contamination and affect the results of the EBS or the classification of the BRAC property into standard environmental condition of property area types.

- **BRAC parcel:** An area of BRAC property that can be segregated from its surrounding areas based on the environmental condition of the area.
- **Hazardous substances:** Substances listed in 40 Code of Federal Regulations (CFR) 302.4, CERCLA Hazardous Substance Table.

- **Petroleum:** Any petroleum product or its derivatives, including aviation fuel and motor oil.

- **Environmental condition of property area type:** Any of the seven standard environmental condition of property area types (categories) as defined in the CERFA guidance and the DOD *BCP Guidebook* (DOD 1993) and presented in Table 1-1.

Table 1-1
ENVIRONMENTAL CONDITION OF PROPERTY DEFINITIONS

CATEGORY 1
Areas where no storage for one year or longer, release, or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent properties). Additionally, includes areas where no evidence exists for the release, disposal, or migration of hazardous substances or petroleum products; however, the area has been used to store less than reportable quantities of hazardous substances (40 CFR 302.4) or 600 or fewer gallons of petroleum products.
CATEGORY 2
Areas where only storage of hazardous substances in amounts exceeding their reportable quantity or petroleum products exceeding 600 gallons has occurred, but no release, disposal, or migration has occurred.
CATEGORY 3
Areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or remedial action.
CATEGORY 4
Areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, and all removal or remedial actions to protect human health and the environment have been taken.
CATEGORY 5
Areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, and removal or remedial actions are underway, but all required actions have not yet been implemented.

Table 1-1
(Continued)

CATEGORY 6
Areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, but required removal or remedial actions have not yet been initiated.
CATEGORY 7
Areas that are not evaluated or require additional evaluation.

- **Suitable for transfer:** BRAC parcels that are designated as Category 1, 2, 3, or 4 are suitable for transfer or lease, subject to consideration of the non-CERCLA qualifiers**.**

- **Not suitable for transfer:** BRAC parcels that are currently designated as Category 5, 6, or 7 are not suitable for transfer, but may be suitable for lease.

- **Reserve enclave:** An area of the installation real property that will be retained by DOD and, therefore, is not categorized into standard environmental condition of property area types under the EBS.

- **Parcel labels:** Each BRAC parcel has been given a number to which appropriate descriptive labels are attached. The numbers consist of a unique parcel identification number and an environmental condition of the property category number. The labels consist of a designation describing the type of contamination or storage, if applicable. The following designations are used to indicate the type of contamination or storage present in a parcel.

  PS = Petroleum storage
  PR = Petroleum release or disposal
  HS = Hazardous substance storage
  HR = Hazardous substance release or disposal

  Examples of this identification system follow:

  – 2(1) indicates that the second BRAC parcel is designated as a Category 1 parcel.

  – 12(3)HR indicates that the twelfth BRAC parcel is categorized as Category 3 because of a documented hazardous substance release, but the concentrations do not warrant remediation.

- **Non-CERCLA substances:** Environmental or safety issues that are addressed under other regulatory programs, such as the Toxic Substances Control Act (TSCA), the Office of Solid Waste and Emergency Response (OSWER), the Occupational Safety and Health Act (OSHA), or the U.S. Department of Housing and Urban Development (HUD), when not present as a result of disposal or accidental or deliberate release inconsistent with the product's use.

- **Qualified parcels:** Areas containing or suspected of containing non-CERCLA contamination substances that may limit or preclude the transfer or lease of the property for unrestricted use. These parcels will be delineated separately and labeled with the letter "Q" for "qualified." Qualified parcels overlay all environmental condition of the property categories (i.e., Categories 1 through 7). The qualified parcel labels are identified with the following designator, as applicable:

A	=	Asbestos-containing material (ACM)
L	=	Lead-based paint (LBP)
P	=	Polychlorinated biphenyls (PCBs)
R	=	Radon
X	=	Unexploded ordnance (UXO) and/or ordnance fragments
RD	=	Radionuclides

For all parcels, "(P)" is used to indicate that the presence of a contaminant is possible, but that data are unavailable for verification.

For example, the fifth parcel with the presence of ACM and the possible presence of LBP will be labeled 5Q-A/L(P).

1.4 LIMITATIONS

Although this investigation was performed professionally, no investigation may be considered so comprehensive as to guarantee complete information regarding the possible presence of materials on the installation that currently or in the future may be considered hazardous. The conclusions presented

in this EBS report are based on information that was reasonably available from the designated installation contacts and other public sources at the time the EBS was conducted. In addition, information obtained from the records review and the interviews has been assumed to be correct and complete, unless contradictory information was obtained through other sources.

1.5 GENERAL GEOGRAPHIC AND ENVIRONMENTAL SETTINGS

Camp Bonneville is located in Clark County in the southwestern portion of Washington, approximately 12 miles northeast of Vancouver, as shown on Figure 1-1. It consists of 3,840 acres, of which 820 acres are leased from the state of Washington (U.S. Army, Ft. Lewis, Real Estate Branch 1994a).

Camp Bonneville is a sub-installation of Vancouver Barracks, which is a sub-installation of Fort Lewis, Washington. It includes the Camp Killpack and Camp Bonneville Cantonment Areas covering approximately 30 acres, with the remaining land used for training. Section Three of this report discusses past and present uses of Camp Bonneville.

1.5.1 Demographics

Camp Bonneville is in a rural area where no significant encroachments or pressures are created by residential growth. The surrounding area is a sparsely populated rural community used for livestock grazing and farming, with evidence of gradual encroachment of residential development from Vancouver. The nearest town is the unincorporated community of Proebstel, about two miles west of the installation (U.S. Army, Ft. Lewis, Real Estate Branch 1994a).

1.5.2 Physical Setting

Camp Bonneville is located on the western slope of the Cascade Mountains in the Lacamas Creek valley. The terrain is generally rolling, typical of foothills of the Cascade Mountains, covered with undergrowth and large stands of coniferous timber. The west quarter of the installation consists generally of low hills and the low plain of the Lacamas Creek valley, while the remainder of the post is comprised of the well-dissected hills of the westernmost Cascade Mountain foothills. Elevations range from 289 feet in Lacamas Creek at the southwest corner of the installation to 1,000 feet at the northwest, 1,350 feet at the southeast, and 1,452 feet at the south-central boundary of the installation.

The topography is erosional except for shallow deposition in the Lacamas Creek valley (Geo Recon International 1981).

1.5.3 Climatology

The climate of Camp Bonneville is cool and humid in fall, winter, and spring, with dry summers. Air currents over this area are predominantly from the west, and air masses conditioned by the Pacific Ocean greatly moderate both the colder temperatures of winter and the heat of summer. A difference of only 28 degrees exists between the mean January temperature, the coldest month of the year, and that of July, the warmest. On the average, there are only 26 days a year with temperatures below freezing and 7 days with temperatures of 90 degrees Fahrenheit (ºF) or more. Highest and lowest recorded temperatures during the past 77 years are 103°F and 19°F, respectively. Forty-four percent of the 42.26 inches average annual total rainfall occurs during the spring, 7 percent during the summer, 27 percent in the fall, and 22 percent in the winter. There is an average of 154 days a year with measurable amounts of rainfall. The usual snow depth is only two or three inches, with a continuous snow cover lasting one to three days at a time. The yearly average wind speed is 6.8 miles per hour, with negligible differences between the various seasons of the year. Heavy fog occurs frequently during the fall and winter (U.S. Army, Ft. Lewis, DFE 1978).

1.5.4 Hydrology

The principal surface water feature is Lacamas Creek, which flows from the coalescence of three branch streams in the north-central part of Camp Bonneville southward, exiting the installation at its southwest corner. Numerous minor tributaries draining adjacent uplands flow into Lacamas Creek. Buck Creek and David Creek, the largest of these streams, drain the highlands to the south and east. Two artificial impoundments of Lacamas Creek, with a total surface area of less than 4,600 square feet, have been created to support a trout sports fishery (USACE 1987).

1.5.5 Geology and Soils

Camp Bonneville is situated on the margin of the western foothills of the southern Cascades in the transition zone between the Puget Trough and the Willamette Trough Provinces. The geology of this

area generally consists of Eocene and Miocene volcanic and sedimentary rock types overlain by unconsolidated clays, silts, sands, and gravels of the Troutdale Formation (USACE 1987).

The geology at Camp Bonneville can be divided into three general areas which correspond approximately to topographic divisions. The area west of Lacamas Creek is composed of a series of predominately gravel and semi-consolidated conglomerate with scattered lenses and stringers of sand (Upper Troutdale Formation). Underlying the Troutdale Formation, and comprising the area to the north and east of Lacamas Creek, is predominantly basalt flows and flow breccia, with some pyroclastic and andesitic rocks, which are folded and faulted. The bottomland along Lacamas Creek is comprised of unconsolidated silt, sand, and gravel valley fill, with some clay. Due to the thick soil and dense vegetation, no faults have been identified within Camp Bonneville (Environmental Science and Engineering, Inc. [ESE] 1983).

Soils of Camp Bonneville are mainly clayey and nonporous, so there is considerable runoff after each storm and occasional minor flooding of Lacamas Creek. Upland soils have mainly developed from basalt and are generally gravelly or stony and fairly shallow. Bottomland soils along Lacamas Creek tend to be clayey (Geo Recon International 1981).

1.5.6 Hydrogeology

Little information is available for Camp Bonneville groundwater. The groundwater flow generally follows local topography toward the south and west. A rising water table occurs in the early fall through spring during the rainy season, and a lowering of the water table occurs throughout the summer months. Two drinking water wells are located at Camp Bonneville, a 385-foot deep well at the Camp Bonneville Cantonment and a 193-foot deep well at the Camp Killpack Cantonment (ESE 1983). Several groundwater monitoring wells associated with the sewage lagoon are located east of the Camp Bonneville Cantonment and, to date, no groundwater samples have been collected from these wells.

2.0 SOURCES OF INFORMATION

The EBS investigation meets the requirements of CERCLA (1980) Section 120(h), as amended by CERFA and implemented by DOD. This section describes the sources of information that were used to support the determination of the environmental condition of the Camp Bonneville BRAC property.

2.1 INSTALLATION/BRAC PROPERTY

Relevant information and documents that were used to conduct the Camp Bonneville EBS are identified in the following sections. This information includes environmental studies; federal, state, and local regulatory records; and interviews of installation personnel. Visual inspections of the installation property and adjacent properties were also conducted.

2.1.1 Existing Documents

Existing documents were reviewed to evaluate the environmental conditions at Camp Bonneville. The 16 documents presented in Table 2-1 are the primary documents used in the preparation of this EBS report. Each document has a document identification number, which is referenced in the CERFA map table (Table 5-1) in Section Five. These documents are the primary source of evidence for the resulting environmental condition of property area categorization. A complete list of references is included in Section Six.

Table 2-1
PRIMARY DOCUMENTS

DOCUMENT TITLE	AUTHOR	DATE	EBS SOURCE OF EVIDENCE DOCUMENT IDENTIFICATION NUMBER
Installation Assessment of the HQ, I Corps and Ft. Lewis, Washington and the Subinstallations Yakima Firing Center, Camp Bonneville, and Vancouver Barracks	Environmental Science and Engineering, Inc.	September 1, 1983	1
Generator Annual Report (Sharp Microelectronics Technology, Inc.)	Washington State Department of Ecology	March 3, 1995	2

Table 2-1
(Continued)

DOCUMENT TITLE	AUTHOR	DATE	EBS SOURCE OF EVIDENCE DOCUMENT IDENTIFICATION NUMBER
Spotted Owl Survey for 1994-1995 on Ft. Lewis and Camp Bonneville, Washington	Raedeke Associates, Inc.	December 1, 1995	3
Request for Determining Eligibility for National Register and Finding of Non-Eligibility by Washington State Historic Preservation Office	USACE, Seattle District	June 28, 1986	4
Cultural Resource Reconnaissance of Forest Management Tracts on Fort Lewis and Camp Bonneville, Washington	University of Washington	January 1, 1980	5
Lease Renewal Requirements	USACE	May 2, 1991	6
Environmental Compliance Inspections	U.S. Army, Ft. Lewis, ENRD-DEH	February 26, 1993	7
Environmental Compliance Inspection Report	U.S. Army, Ft. Lewis, ENRD-DEH	January 10, 1994	8
Cultural Resource Survey, Forest Management Project, Ft. Lewis and Camp Bonneville, Washington	Geo Recon International	April 1, 1981	9
Environmental Impact Analysis, Camp Bonneville, Washington	U.S. Army, Ft. Lewis, DFE	August 1, 1978	10
Transformer PCB Report	U.S. Army, Ft. Lewis, OMD-DPW	December 12, 1995	11
Camp Bonneville Real Property Utilization Report	U.S. Army, Ft. Lewis Real Estate Branch	December 31, 1994	12
VISTA National Radius Profile	VISTA Environmental Information Inc.	November 6, 1995	13
National Historic Landmarks	Washington State Department of Community Development	January 31, 1993	14
Notes from Site Overview Meeting with Jerry Cummings	Woodward-Clyde	December 13, 1995	15
Underground Storage Tank 30 Day Notice	Washington State Department of Ecology	January 19, 1995	16

2.1.2 Federal, State, and Local Government Regulatory Records

A search of federal, state, and local records pertaining to Camp Bonneville and a search of reasonably obtainable federal, state, and local records of adjacent (within a three-mile radius of the installation) property was performed. In addition, a search of the environmental databases listed in Table 2-2 was conducted.

Table 2-2
ENVIRONMENTAL DATABASES

DATABASE	CONTENTS
National Priorities List (NPL)	The NPL lists Superfund sites, which are sites that are determined by the U.S. Environmental Protection Agency (EPA) to pose an immediate public health hazard requiring immediate cleanup response.
Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)	The EPA CERCLIS database contains information on CERCLA sites, and is updated periodically.
Emergency Response Notification System (ERNS)	EPA maintains ERNS, which is a repository for information on hazardous spills nationwide. This information is based on reports filed by local agencies (e.g., municipal fire, police, or environmental departments), county agencies, state entities, and federal agencies (e.g., U.S. Coast Guard, National Response Center, and EPA).
Resource Conservation and Recovery Act (RCRA) Facilities Database	Facilities listed in this EPA database are RCRA facilities for which a Corrective Action has been issued to address waste handling problems.
Resource Conservation and Recovery Information System (RCRIS)	This database contains information on all RCRA facilities. The facility types include: large quantity generators; small quantity generators; conditionally exempt facilities; transporter facilities; and treatment, storage, and disposal (TSD) facilities. Large quantity generators generate over 1,000 kilograms (kg) hazardous waste/month, or greater than 1 kg acutely hazardous waste as defined by RCRA. Small quantity generators generate more than 100 and less than 1,000 kg of hazardous waste during any calendar month.
Facility Index System (FINDS)	EPA references any facility or event that has been issued an EPA identification number; the EPA program office that issued the identification number is also listed. These listings do not necessarily reflect releases.
Washington State Department of Ecology, Southwest Regional Office Leaking Underground Storage Tank (LUST) Site List	This database lists LUSTs in the southwest region of Washington that are known to the state of Washington to be leaking.

The complete database search report, including a map indicating the location of the following site, is provided in Appendix B. The database search has identified the following:

- A site that formerly contained two LUSTs is located 2.68 miles from Camp Bonneville. Remediation was completed at this site, Washington State Department of Ecology site identification No. 102164, in February 1994 (Foss Environmental 1994).

2.1.2.1 Permits and Permit Applications

The records review and interview did not reveal any permits or permit applications associated with Camp Bonneville.

2.1.2.2 Inspection Reports and Enforcement Actions

An environmental compliance inspection was performed by the U.S. Army in February 1993 (U.S. Army, Ft. Lewis, ENRD-DEH 1993). The following environmental concerns were identified:

- There was a high degree of probability that the underground storage tank (UST) located at the Camp Killpack Cantonment equipment refueling site (Building 4475) was leaking, based on the fact that fuel consumption and tank filling records did not coincide. Additionally, the area around the fuel site was "heavily contaminated with fuel stains on the ground from spills associated with filling and dispensing operations" (U.S. Army, Ft. Lewis, ENRD-DEH 1993).

- The wash point located south of Building 4475 did not have an oil/water separator (OWS). This wash point is simply a wide turnout off the main road without any equipment or facilities. This area is used to remove mud or dirt that has accumulated on field vehicles. The washwater is allowed to run off the site toward surrounding drainage ditches.

A second environmental compliance inspection was performed by the U.S. Army in January 1994 (U.S. Army, Ft. Lewis, ENRD-DEH 1994a). No findings of environmental significance were

identified. However, this inspection gave no indication of the status of the concerns identified in the 1993 inspection.

2.1.3 Aerial Photographs

An extensive aerial photograph search was conducted, which included the U.S. Geological Survey (USGS), Ft. Lewis Forestry, USACE, U.S. Forest Service, Washington State Department of Ecology, Washington State Department of Natural Resources, and three private aerial photograph companies.

Aerial photographs of Camp Bonneville that were obtained for the years 1972 (Rumonage 1972), 1987 (U.S. Army, 54th Engineering Detachment 1991), and 1993 (U.S. Geological Survey 1993a) were not of an adequate scale to provide useful detail or information. Ninety-seven photographs covering the years 1963, 1968, 1978, 1984, 1988, and 1989 were obtained from the Ft. Lewis Forestry Division. No potential environmental concerns were identified during the analysis of these aerial photographs.

2.1.4 Existing Property Maps

Existing property maps reviewed for this EBS include topographic maps obtained from the USGS and several U.S. Army maps, which provided information regarding boundaries of training areas, firing ranges, and potential impact areas. Table 2-3 provides a listing of the property maps.

Table 2-3
EXISTING PROPERTY MAPS

TITLE	AREA OF DETAIL	DATE	SOURCE
Utility Plan of Camp Killpack	Camp Killpack Cantonment Utility Lines (water, sewer, electric, phone)	1944	U.S. Army, Vancouver Barracks, 1944
Camp Bonneville Military Reservation (Topographic Map)	Entire Installation, Including Firing Points and Impact Areas	1958	U.S. Army, Vancouver Barracks, 1958

Table 2-3
(Continued)

TITLE	AREA OF DETAIL	DATE	SOURCE
Camp Bonneville Reservation Boundary and Range Map	Installation Range and Impact Areas	1959	Office of the Post Engineer, Vancouver Barracks, 1959

Repair and Improve Sanitary Sewer System, Camp Bonneville, Washington	Camp Bonneville Cantonment Facilities and Sewer Lines	1969	U.S. Army, Fort Lewis, 1969
Camp Bonneville Military Reservation (Topographic Map)	Entire Installation, Including Firing Points and Impact Areas	1972	U.S. Geological Survey, 1972
General Storm Sewer Map	Installation Storm Sewer Lines	1979	John Graham Company, 1979
Camp Killpack Drainage, Plate C-1	Camp Killpack Cantonment Facilities	1983	U.S. Army, Ft. Lewis, 46th Engineering Command, 1983
Camp Killpack Drainage, Plate C-2	Camp Killpack Cantonment Facilities	1983	U.S. Army, Ft. Lewis, 46th Engineering Command, 1983
Lacamas Creek, Washington	Topographic Map Including Installation	1990	U.S. Geological Survey, 1990
Camp Bonneville Military Reservation	Entire Installation	1991	U.S. Army, 54th Engineering Detachment, 1991

2.1.5 Interviews

To facilitate the review of the installation's environmental history and practices, interviews of a current and former employee involved in operations were conducted. The purpose of these interviews was to support the determination of the environmental condition of the property. To ensure the interview process was thorough, standardized interview forms were created and utilized. A sample interview form is presented in Appendix C.

Camp Bonneville is generally staffed by active military personnel who are rotated every two to three years. Only two persons, Jerry Cummings, the Facility Manager, and Lyle Jensen, the former Facility Manager, were identified as having long-term and detailed knowledge of the installation. Mr. Cummings has been associated with Camp Bonneville since 1976, and Mr. Jensen was Facility Manager from 1971 to 1976. In regards to adjacent properties, two individuals were interviewed. Bill Lambiaso and Barbara Walden, who are AT&T employees, were interviewed regarding the adjacent AT&T property at Livingston Mountain. Adjacent properties are discussed in Section 4.3.

2.1.6 Visual Inspections

As required by CERCLA 120(h)(4)(A)(iv) and (v) and DOD guidance, a visual inspection of the real property and properties adjacent to the property was conducted and is addressed in this EBS report. On-site visual inspections of the installation property and adjacent properties were conducted by the Woodward-Clyde field team during the period of December 13 to December 15, 1995. Visual inspections conducted by the field team included grounds, buildings, structures, and equipment. Inspection methods included visual inspections from automobiles and surveys conducted during site walks. To ensure the visual inspections were thorough, standardized visual inspection forms were created and utilized. A sample visual inspection form is presented in Appendix D.

Because of safety concerns due to the potential presence of UXO, inspections of the ranges were conducted from the main roads through these areas. Following UXO surveys and cleanup (if required), comprehensive visual inspections will be conducted in the ranges. Also, the visual inspections did not include the new Federal Bureau of Investigation (FBI) facilities, because access to these facilities was not available.

2.1.7 Title Documents

CERCLA 120(h)(4)(A)(ii) and DOD guidance require a review of the "recorded chain of title documents regarding the real property." For the EBS, tract maps and title and transfer documents were reviewed to identify the prior property owners at the time of transfer to the U.S. Army. The purpose of this review was to collect additional information concerning the prior use and environmental condition of the property at the time of transfer to the U.S. Army. Previous ownership and the dates of transfer are presented in Appendix E.

According to the title documents, all Camp Bonneville property currently owned by the U.S. Army (3,020 acres) was acquired in 1919. Prior to U.S. Army appropriation of the property, property owners were largely individuals. Portions of the property were owned by two pulp and paper companies and a power company, most likely for the use of the timber resources. Logging operations on these properties would not be expected to cause site contamination. No areas were identified for which prior ownership would indicate a potential for environmental concern.

3.0 PROPERTY CHARACTERIZATION

This section presents an overview of past and current operations at Camp Bonneville and a discussion of potential environmental contamination associated with these operations. It provides a description of the installation facilities and addresses past and current waste management practices at Camp Bonneville.

3.1 PROPERTY OVERVIEW

Information was collected through record searches, interviews, visual inspections, and map reviews. In addition, this section contains a general description of each facility within the installation as described through existing documentation or site visits.

3.2 INSTALLATION HISTORY AND MISSION

Camp Bonneville is a sub-installation of Vancouver Barracks, which is a sub-installation of Fort Lewis. In 1909, Camp Bonneville was established with 309 leased acres as a drill field and rifle range for Vancouver Barracks. In 1912, an appropriation was made to expand facilities at Camp Bonneville to include a target range and a road leading to the post. In 1919, 2,711 acres were purchased upon which Camp Bonneville was established. The Camp Bonneville and Camp Killpack Cantonments were established during the late 1920s and the early 1930s, respectively, and contain a total of 46 buildings. The U.S. Army leased 840 acres, in two separate parcels, from the state of Washington in 1955. In 1957, the lease on 20 acres was terminated. The U.S. Army's lease on the remaining 820 acres was in effect until September 30, 1996 (U.S. Army, Ft. Lewis, AFZH-PTM-R 1991). The USACE, under the direction of the U.S. Army Forces Command (FORSCOM), is currently pursuing a lease extension for 12 months with the Washington State Department of Natural Resources (DNR).

The mission of Camp Bonneville is to provide a training camp for active U.S. Army, U.S. Army Reserve, U.S. National Guard, U.S. Marine Corps Reserve, U.S. Navy Reserve, U.S. Coast Guard Reserve units, and other DOD Reserve personnel.

The past use of Camp Bonneville has varied and has been mostly dependent on the type and level of demand for trained personnel. It was also used as an internment camp during World War II. Camp

Bonneville is currently used for weekday training of company-sized units from Fort Lewis and weekend use by Oregon or Washington Reserve units. The type of use of this training camp varies depending upon the unit using the facility but generally includes the use of the firing ranges and training areas as described in the following sections. When not required for military training activities, Camp Bonneville was used until the late 1980s by local civic and nonprofit organizations for religious retreats and picnics, as a camp for Boy Scouts, as a location for high school environmental studies, and for State Highway Patrol pistol training (U.S. Army, Ft. Lewis, Real Estate Branch 1994a).

The one tenant at Camp Bonneville is the FBI. The FBI owns and manages training facilities that they constructed at Camp Bonneville in 1995.

The U.S. Army has been managing forest land at Camp Bonneville since 1957. Management activities have consisted of scarification and replanting of lands burned during the fires of 1902, 1938, and 1951, and timber sales (USACE 1991).

3.3 DESCRIPTION OF FACILITIES

The majority of Camp Bonneville facilities are found at the Camp Bonneville Cantonment (26 facilities) and the Camp Killpack Cantonment (24 facilities). Other permanent structures at Camp Bonneville are the structures associated with the firing ranges (e.g., lookout towers, shelters). Tables 3-1 and 3-2 list the Camp Bonneville and Camp Killpack Cantonment facilities, including their past and current use. Table 3-3 lists the firing range facilities. Because of the lack of personnel knowledgeable about the installation prior to 1968, the information on past use of the facilities is limited. However, because the intended uses of the facilities as they were constructed does not appear to have changed over the years, it may be assumed that the present uses are representative of past uses.

Table 3-1
CAMP BONNEVILLE CANTONMENT FACILITIES

BUILDING NUMBER	CONSTRUCTION TYPE	YEAR BUILT	PAST USE	CURRENT USE
1815	Metal building with a concrete floor.	1976	Well Pump House and Water Treatment	Well Pump House and Water Treatment. Twelve percent sodium hypochlorite is stored in typical quantities of up to 10 gallons.
1826	Wood building with a wood floor. The forced air heating, ventilation, air conditioning (HVAC) is powered by a 275-gallon diesel AST.	1927	Barracks	Barracks
1828	Wood building with a wood floor. The forced air HVAC is powered by a 275-gallon diesel AST.	1933	Barracks	Barracks
1833	Wood building with a concrete floor. The forced air HVAC is powered by a 275-gallon diesel AST.	1927	Latrine	Latrine
1834	Wood building with a wood floor. This building has no HVAC.	1927	CS Gas (o-chlorobenzal-malononitrile) Training Chamber	This facility is not currently in use.
1837	Wood building with a wood floor. The forced air HVAC is powered by a 275-gallon diesel AST.	1927	Barracks	Barracks
1847	Wood building with a wood floor. The forced air HVAC is powered by a 275-gallon diesel AST.	1927	Barracks	Barracks
1848	Wood building with a wood floor. The forced air HVAC is powered by two 275-gallon diesel ASTs.	1933	Mess Hall	Mess Hall
1857	Wood building with a wood floor. The forced air HVAC is powered by a 275-gallon diesel AST.	1927	Barracks	Barracks
1864[a]	Wood building with transite siding and a concrete floor. This building has no HVAC.	Unknown	Grounds Shop	Grounds Shop. Provides storage of miscellaneous grounds equipment including three all-terrain vehicles (ATVs), small gas containers, and car size batteries.
1867	Wood building with a wood floor. The forced air HVAC is powered by a 275-gallon diesel AST.	1927	Barracks	Barracks
1911	Wood building with a wood floor. The forced air HVAC is powered by two 275-gallon diesel ASTs.	1933	Barracks	Barracks

Table 3-1
(Continued)

BUILDING NUMBER	CONSTRUCTION TYPE	YEAR BUILT	PAST USE	CURRENT USE
1920	Wood building with a wood floor. The forced air HVAC is powered by a 275-gallon diesel AST.	1933	Barracks	Barracks
1922	Wood building with a wood floor. The forced air HVAC is powered by two 275-gallon diesel ASTs.	1933	Barracks	Barracks
1930	Wood building with a wood floor. This building has no HVAC.	1933	Storage	Storage
1932	Wood building with a wood floor. The forced air HVAC is powered by two 275-gallon diesel ASTs.	1933	Barracks	Barracks
1934	Wood building with a concrete floor. The forced air HVAC is powered by two 275-gallon diesel ASTs.	1933	Latrine	Latrine
1940	Wood building with a wood floor. The forced air HVAC is powered by two 275-gallon diesel ASTs.	1933	Day Room	Day Room/Classroom
1942	Wood building with a wood floor. The forced air HVAC is powered by two 275-gallon diesel ASTs.	1933	Barracks	Barracks
1962	Unknown	1933	Unknown	Destroyed by fire
1963	Wood building with a wood floor. This building has no HVAC.	1928	Storage	Storage. Items associated with engineering, such as paint, wood, sacks of concrete, and nails, are stored in this building.
1980	Wood building with a wood floor. The forced air HVAC is powered by a 275-gallon diesel AST.	1928	Command Post	Command Post
1983	Unknown	Unknown	Outdoor Theater	Destroyed by fire
1992	Metal building with a concrete floor. This building has no HVAC.	1978	Water Well Pump House	Water Well Pump House
1995	Metal building with a concrete floor. This building has no HVAC.	1978	Sewage Treatment Chemical Storage	Sewage Treatment Chemical Storage. Up to 10 gallons of 12 percent sodium hypochlorite is stored in this building.
1997	Concrete with 275-gallon diesel tank for backup power.	1978	Sewage Lift Station	Sewage Lift Station
2663	Concrete reservoir with sheet metal roof on wood frame. This building has no HVAC.	1952	Reservoir	Reservoir

Table 3-1
(Continued)

BUILDING NUMBER	CONSTRUCTION TYPE	YEAR BUILT	PAST USE	CURRENT USE
2950	Subsurface concrete building with a concrete floor. This building has no HVAC.	1976	Ammunition Bunker	Ammunition Bunker. Various types of ammunition brought on site by units using the facility are stored in this building.
2951	Subsurface concrete building with a concrete floor. This building has no HVAC.	1976	Ammunition Bunker	Ammunition Bunker. Various types of ammunition brought on site by units using the facility are stored in this building.
2953	Subsurface concrete building with a concrete floor. This building has no HVAC.	1976	Ammunition Bunker	Ammunition Bunker. Various types of ammunition brought on site by units using the facility are stored in this building.

Note:
[a] Information regarding hazardous materials/waste management associated with this facility is discussed in Section 3.4.1.

Table 3-2
CAMP KILLPACK CANTONMENT FACILITIES

BUILDING NUMBER	CONSTRUCTION TYPE	YEAR BUILT	PAST USE	CURRENT USE
4125	Wood frame structure with a dirt floor. This building has no HVAC.	1958	Storage	Storage. This open structure is used as a carport to store vehicles.
4126[a]	Wood building with a wood floor. This building has no HVAC.	1958	Storage	No longer in use.
4155	Wood building with a wood floor. The HVAC is electric-powered.	1935	Barracks	Housing
4314	Wood building with a wood floor. The HVAC is electric-powered.	1935	Barracks	Barracks
4316	Wood building with a wood floor. The HVAC is electric-powered.	1935	Barracks	Barracks
4325	Wood building with a wood floor. The HVAC is electric-powered.	1935	Barracks	Barracks
4327	Wood building with a wood floor. The HVAC is electric-powered.	1935	Barracks	Barracks
4337	Wood building with a concrete floor. The HVAC is electric-powered.	1935	Latrine	Latrine

Table 3-2
(Continued)

BUILDING NUMBER	CONSTRUCTION TYPE	YEAR BUILT	PAST USE	CURRENT USE
4345	Wood building with a wood floor. The HVAC is electric-powered.	1935	Barracks	Barracks
4348	Wood building with a wood floor. The HVAC is electric-powered.	1935	Barracks	Barracks
4356	Wood building with a wood floor. The HVAC is electric-powered.	1936	Barracks	Barracks
4364	Wood building with a concrete floor. The forced air HVAC is powered by a 275-gallon diesel AST.	1935	Latrine	Latrine
4366	Wood building with a wood floor. The HVAC is electric-powered.	1936	Barracks	Barracks
4368	Wood building with a wood floor. The HVAC is electric-powered.	1935	Barracks	Barracks
4377	Wood building with a wood floor. The HVAC is electric-powered.	1935	Barracks	Barracks
4378	Wood building with a concrete floor. This building has no HVAC.	1935	Storage	Storage. Items associated with grounds maintenance, such as lawnmowers, small gasoline containers, 32-ounce containers of oil, and motorized weed cutters, are stored in this building.
4387	Wood building with a wood floor. The HVAC is electric-powered.	1935	Barracks	Barracks
4389	Wood building with a wood floor. The HVAC is electric-powered.	1935	Mess Hall	Mess Hall
4398	Wood building with a wood floor. The HVAC is electric-powered.	1935	Barracks	Range Control
4475	Wood building with a concrete floor. This building has no HVAC.	1937	Vehicle Maintenance	Vehicle Maintenance. This building is used to store vehicles and items associated with vehicle repair.
4475A[a]	Metal shed with a metal floor.	1992	Hazardous Materials Storage	Hazardous Materials Storage. A 55-gallon drum of oil and several containers of antifreeze were observed stored in this building.

Table 3-2
(Continued)

BUILDING NUMBER	CONSTRUCTION TYPE	YEAR BUILT	PAST USE	CURRENT USE
4475B[a]	Metal shed with a metal floor.	1992	Hazardous Materials Storage	Hazardous Materials Storage. Four 5-gallon drums of oil, four 5-gallon drums of antifreeze, and eight 5-gallon drums of transmission oil were observed stored in this building.
4476[a]	Cinder block shed with a concrete floor.	1978	Covered Storage	Covered Vehicle Maintenance Storage. Miscellaneous supplies for vehicle maintenance, including a 55-gallon drum used to collect waste oil, are stored in this building.
4476A	Metal roof with concrete secondary containment.	1994	1,000-gallon AST	This building provides covered storage for a 1,000-gallon AST with secondary containment.
4483	Wood building with a concrete floor.	1993	Fire Station	Fire Station. This building is the relocated fire station, and one fire truck is stored here.
4522	Metal building with a concrete floor.	1950	Water Well Pump and Water Treatment Building	Water Well Pump Building and Water Treatment. Up to 35 gallons of 12 percent sodium hypochlorite is stored in this building.
4532	Concrete reservoir with sheet metal roof on wood frame.	1960	Reservoir	Reservoir

Note:
[a] Information regarding hazardous materials/waste management associated with this facility is discussed in Section 3.4.1.

Table 3-3
RANGE FACILITIES

BUILDING NUMBER	CONSTRUCTION TYPE	YEAR BUILT	PAST USE	CURRENT USE
U001A	Wood frame and walls, asphalt shingle roof, and no insulation.	1991	Observation Tower	Observation Tower
U001B	Wood frame, no walls, asphalt shingle roof, and no insulation.	1992	Covered Training Area	Covered Training Area
U001C	Wood frame, no walls, asphalt shingle roof, and no insulation.	1995	Covered Training Area (Bleachers)	Covered Training Area (Bleachers)

Table 3-3
(Continued)

BUILDING NUMBER	CONSTRUCTION TYPE	YEAR BUILT	PAST USE	CURRENT USE
U002A	Wood frame and walls, asphalt shingle roof, and no insulation.	1991	Observation Tower	Observation Tower
U002B	Wood frame, no walls, corrugated metal roof, and no insulation.	1991	Covered Training Area	Covered Training Area
U003B	Wood frame, no walls, corrugated metal roof, and no insulation.	1992	Covered Training Area	Covered Training Area
U004A	Wood frame and walls, sheet metal roof, and no insulation.	1991	Observation Tower	Observation Tower
U004B	Wood frame, no walls, asphalt shingle roof, and no insulation.	1991	Covered Training Area	Covered Training Area
U004C	Metal frame, three walls with corrugated metal siding, corrugated metal roof, and no insulation.	1991	Covered Training Area (Bleachers)	Covered Training Area (Bleachers)
U005A	Wood frame and walls, sheet metal roof, and no insulation.	1992	Observation Tower	Observation Tower
U006A	Wood frame and walls, sheet metal roof, and no insulation.	1991	Observation Tower	Observation Tower
U006B	Wood frame and walls, sheet metal roof, and no insulation.	1991	Observation Tower	Observation Tower
U007	Not inspected.	1957	Heavy Demolition	Heavy Demolition
U007A	Treated heavy lumber.	1976	Heavy Demolition	Heavy Demolition
U008	Wood frame and walls, sheet metal roof, and no insulation.	1991	Observation Tower	Observation Tower
U008B	Wood frame, no walls, corrugated metal roof, and no insulation.	1992	Covered Training Area	Covered Training Area
U010A	Wood frame and walls, sheet metal roof, and no insulation.	1992	Observation Tower	Observation Tower
U010B	Wood frame, no walls, corrugated metal roof, and no insulation.	1991	Covered Training area	Covered Training Area
FBI Range	Not available	1995	Not Applicable	FBI-owned buildings, including an office, a gun cleaning room, a class room, and a range observation tower.
Unknown	Wood building	Unknown	CS Gas Training Building	Destroyed by fire in the late 1970s

3.4 FACILITY SUPPORT ACTIVITIES

Currently, Camp Bonneville has approximately 18 tactical training areas, including an emergency air and helicopter strip and approximately 10 firing ranges. The training areas are generally used for non-firing training exercises, while the firing ranges have been used for a variety of weapons training. This section provides an overview of the non-firing and firing training.

Non-firing training at Camp Bonneville involves troop maneuvers, encampments, and field tactical training with some vehicle support. Vehicles used at Camp Bonneville include light and heavy trucks, occasional construction equipment, and tracked vehicles that are limited to existing roads. Helicopters occasionally use the emergency landing strip. In addition, Engineer units use the training areas for combat and construction training, including construction and removal of barriers and limited quarrying and road work. Smoke and riot control agents have been used in association with field training activities (ESE 1983).

The numerous firing ranges found at Camp Bonneville have been used at one time or another for a variety of weapons training. At least 25 firing ranges have been identified from maps dating back to 1958. These include small arms through large caliber machine gun, rifle, grenade, practice light antitank weapon rocket ranges, and subcaliber and practice ranges. Artillery and mortar training was conducted at the installation until 1968.

Although range maps dated prior to 1958 were not located, the maps reviewed would likely include all historic ranges. This is because:

1. The firing ranges used during the period prior to 1958 were likely much less numerous and smaller than the ranges that were developed later.
2. The maps available show the evolution in the development of ranges over time, from a few, small ranges close to the cantonments, to larger ranges with greater distribution.
3. The history of the installation establishes that the greatest use of the ranges occurred in the 1960s and 1970s.
4. The period from 1909 to 1927 was likely a period of very light use, as the cantonment facilities were not yet built.
5. The combined aerial coverage of ranges identified on the maps reviewed comprises approximately 74 percent of the installation property.

The firing points, firing ranges, and associated range fans and impact areas are shown on Figure 3-1. Table 3-4 provides a listing of the firing ranges.

Table 3-4
FIRING RANGES

RANGE NUMBER	USE	WEAPONS USED
R-1	Small Machine Gun Range	30 caliber
R-2	Pistol Range	22 through 45 caliber
R-3a	K.D. Rifle Range	M1, M14
R-3b	Night Fire Range	Unknown
R-4	Automated Record Fire and 25 Meter Zero	M16
R-5	Field Firing Range	M1, M14
R-6	Record Firing Range	50 caliber, shotgun, pistol
R-7	1,000 Inch (target distance) Machine Gun and Moving Target	50 caliber
R-8	FBI Range	45 caliber, 9mm, 357, 38 caliber
R-9	Combat Pistol Range	22 through 45 caliber
R-10	Grenade Launcher Range	40 mm
R-11	Mortar Range	14.5 artillery subcaliber
R-12	Mortar Range	14.5 artillery subcaliber
R-13	Mortar Training Shell Course	M203, LAW, and mortar
R-14	25 Meter and Machine Gun Range	M-1, M-16, and 50 caliber machine gun
R-15	Live Grenade	Grenades, Claymore mine
R-16	Rifle Grenade/25 Meter Small Machine Gun	M1 and 30 caliber small machine gun
R-17	Rocket Launch Range	3.5 practice
R-18	Unidentified	Unknown
R-19	Infiltration Course 1	30-06, M1
R-20	M31 Field Artillery Range	14.5 artillery subcaliber
R-21	Pistol and Shotgun Range	All pistols and shotgun
R-22	Mortar Practice Range	14.5 artillery subcaliber
R-23	Infiltration Course 2	Unknown
R-24	Pistol Range	All pistols
R-25	Machine Gun	M60
MLFR	Maneuver Live-Fire Range	Unknown
AFP	Artillery Firing Point	105mm

The range fans delineated on Figure 3-1 are believed to encompass all the components of the surface danger zone (Army Regulation 385-63), which includes line of fire, limit of fire, dispersion area, ricochet area, target area, impact area, and secondary danger areas. The area at each range in which the majority of rounds fall is generally very small compared to the full fan.

On Figure 3-1, the Artillery Impact Area is a combination (i.e., maximum area) of all such-named areas from maps reviewed. This area is the intended target area of artillery and mortar practice. On Figure 3-1, the artillery impact fan (AIF) area is a combination (i.e., maximum area) of all artillery impact fans delineated on a 1972 map. The impact fans include the intended Artillery Impact Area and surrounding safety zones. The 1972 map does not delineate the mortar impact areas, but based on interviews with U.S. Army personnel, it is assumed that the impact area of mortar rounds falls entirely within the AIF area (Cummings 1996a). It could be assumed that because of the configuration of the combined AIFs, stray artillery shots may have impacted outside the prescribed Artillery Impact Area.

The range fans and impact areas delineated on Figure 3-1 are conservative and are intended to include the areas potentially impacted by either lead contamination or UXO; however, the presence of either outside the boundaries should be considered.

3.4.1 Hazardous Materials/Waste Management

Currently, hazardous materials and waste at Camp Bonneville are principally materials associated with vehicle maintenance, facility maintenance, and drinking water treatment. The annual inspection of stored products for unusable materials (such as out-of-date or degraded products) generates only small quantities of obsolete paint (AGI Technologies 1995). The following is a list of past (since 1968) and present hazardous materials and waste associated with activities conducted at Camp Bonneville.

Table 3-5
HAZARDOUS MATERIALS

BUILDING NUMBER	HAZARDOUS MATERIALS
1815	Building 1815 is used for water treatment. Approximately 10 gallons of 12 percent sodium hypochlorite solution is stored here.
1995	Building 1995 is used for sewage treatment. Approximately 10 gallons of 12 percent sodium hypochlorite solution is stored here.

Table 3-5
(Continued)

BUILDING NUMBER	HAZARDOUS MATERIALS
1864	This facility stored 55-gallon drums of 2,4,5-trichlorophenoxyacetic acid (2,4,5-T); 2,4-dichlorophenoxyacetic acid (2,4-D); and an unknown amount of 4,4-dichlorodiphenotrichloroethane (DDT) from 1977 to 1980 when the materials were moved to Fort Lewis.
4126	This building was used to store 55-gallon drums of 2,4,5-T; 2,4-D and an unknown amount of DDT until 1977 when these materials were moved to Building 1864.
4475	Pesticides (broad-leaf herbicides) were formerly stored in this building in unknown quantities. Light vehicle maintenance generates soiled rags, used oils, and used antifreeze. Used oils and antifreeze are recycled off site.
4475A	Building 4475A is a hazardous materials storage unit. During the visual inspection, less than 5 gallons of antifreeze and less than 50 gallons of POLs were observed.
4475B	Building 4475B is a hazardous materials storage unit. During the visual inspection, four 5-gallon drums of oil, four 5-gallon drums of antifreeze, and eight 5-gallon drums of transmission oil were observed.
4476	Building 4476 is a hazardous waste (HW) accumulation site. At the time of the EBS, Building 4476 contained a 55-gallon drum used to accumulate waste oil. The oil is collected for disposal by an outside contractor. The disposal method for the waste oil prior to this collection method is unknown.
4522	Building 4522 is used for water treatment. Approximately 35 gallons of 12 percent sodium hypochlorite solution is stored here.

3.4.2 Solid Waste/Landfill Management

No currently active landfills exist on Camp Bonneville. Approximately four cubic yards of solid waste are generated monthly, which is collected by a contractor and transported to an off-site landfill (U.S. Army, Ft. Lewis, DFE 1978).

Four historic landfills and a burn area exist on Camp Bonneville. These areas are discussed further in Section 4.2 of this EBS report.

Knowledge of past U.S. Army field training activities would suggest that some wastes may have been buried by troops in the field. Consequently, small amounts of training supplies may be buried, such as

chemical warfare kits, medical wastes from mobile field medic stations, and ordnance or propellants near firing points.

3.4.3 Underground Storage Tanks and Aboveground Storage Tanks

Currently, no USTs exist at Camp Bonneville. One LUST, which contained diesel, was located east of Building 4475 and was removed in the fall of 1995. The tank was part of a system connecting one 275-gallon AST and one 275-gallon UST. (This tank is discussed further in Section 4.1 of this report.) A second UST was reportedly located at the present location of Building 4476. This 275-gallon tank reportedly contained gasoline and was removed in 1978 when Building 4476 was constructed. According to an interview conducted for this EBS, the tank was intact, the excavation was not stained, and the soil in the excavation did not have a gasoline odor.

Twenty-four 275-gallon ASTs are located at the Camp Bonneville Cantonment and three 275-gallon ASTs are located at the Camp Killpack Cantonment for storage of diesel used in association with the facility HVAC system. Incidental spillage is reported to have occurred during filling; however, the EBS site inspection did not note any evidence of environmental impact, such as sheen, staining, or stressed vegetation. The tanks have no secondary containment structures. Individually, these ASTs are below the reportable quantity but are located such that a 0.25-acre point source centered on each AST overlaps adjacent 0.25-acre point sources.

Additionally, a 1,000-gallon diesel AST is located at Building 4476A.

3.4.4 Injection Wells

The interviews, visual inspections, and records search conducted in support of this EBS did not reveal any past or present use of injection wells.

3.4.5 Drinking Water Management

The source of drinking water for the Camp Bonneville Cantonment is a 385-foot deep well at Building 1815, which was installed in 1978. Water is pumped out of the well, chlorinated, stored in an 88,000-gallon reservoir, and then distributed. The Camp Killpack Cantonment is supplied by a 193-foot deep

well at Building 4522, which was installed in 1943. Water is pumped out of the well, chlorinated, stored in a 10,000-gallon reservoir, and then distributed. Bacteriological testing of drinking water is done monthly by the Preventative Medicine Section of Madigan Army Medical Center (U.S. Army, Ft. Lewis, DFE 1978).

3.4.6 Stormwater Management

A system of drainage ditches runs through both the Camp Bonneville and Camp Killpack Cantonments. These independent systems discharge south of the cantonments into Lacamas Creek.

3.4.7 Sewage Treatment

The Camp Bonneville and Camp Killpack Cantonments were originally built with septic tanks, leach fields, and effluent ponds. Camp Killpack was on a septic system, and Camp Bonneville discharged to an unlined effluent pond approximately 360 feet south of Building 1940. The pond was approximately 50 to 75 feet in diameter and 10 feet deep. These systems were suspected of polluting Lacamas Creek with coliform. The summary of work items on the site plan (U.S. Army, Ft. Lewis, Real Estate Branch 1987) called for these systems to be pumped out and filled with an inert material when the sewage treatment system was constructed in 1978. The Facility Manager reported having the pond pumped out by a tanker truck, then filling the pond with clean fill soil from the immediate area (Cummings 1996b).

The new treatment system consists of a pumping station, non-overflow lagoons with aerators, and a chlorine contact chamber. Wastewater is stored in the lagoons during the winter and is intended to be disposed of by spray irrigation of nearby timber during the summer. Typically, evaporation generally exceeds the influx rate; therefore, the irrigation system has generally not been used. This system meets the "zero discharge" requirements of EPA, Region 10 (U.S. Army, Ft. Lewis, DFE 1978).

3.4.8 Electrical Power Generation

The Camp Bonneville and Camp Killpack Cantonments are supplied by a 2,400 volt service from Clark County Public Utility District No. 1. The power is distributed by a system of government-owned transformers and approximately 30,000 feet of lines. Average monthly consumption of electricity is

11,000 kilowatt hours (U.S. Army, Ft. Lewis, DFE 1978). Information regarding testing of the transformers on Camp Bonneville for PCBs is discussed in Section 4.4.3 of this report.

3.4.9 Fire Training

Historically, fire training activities have not occurred at Camp Bonneville. Fire protection is provided by Clark County Fire District No. 4; the DNR provides firefighting personnel and equipment, when needed, in accordance with a contract. Standpipes with attached fire hoses and nozzles are fed directly from a reservoir (U.S. Army, Ft. Lewis, DFE 1978).

A fire station building is located in the Camp Killpack Cantonment (Building 4483). This building stores a fire truck used by Clark County Fire District No. 4 and the DNR on an as-needed basis to fight fires on or off Camp Bonneville property.

3.4.10 Medical Activities

Historically, medical training activities have not occurred at Camp Bonneville nor is there a hospital located on Camp Bonneville. However, mobile field medic stations very likely supported training activities. Although minimal wastes would have been generated by these stations, some wastes may have been disposed of in the field.

3.4.11 On-Site Housing

Not including the barracks in the cantonment areas, there is only one housing unit at Camp Bonneville. Building 4155 is a single family dwelling currently occupied by installation personnel.

3.5 SENSITIVE ENVIRONMENTS

Complete surveys of Camp Bonneville have not been conducted in support of natural, cultural, and endangered species issues. This section summarizes the findings of the partial surveys identified by the records review.

Riparian and wetland portions of the installation, including Lacamas Creek and other small creeks, are sensitive environments. Furthermore, the Lacamas Creek watershed is part of the Columbia River basin, which supports threatened and endangered animal species.

A spotted owl survey was performed on approximately 300 acres of Camp Bonneville by Raedeke Associates, Inc. in 1994 and 1995. The survey did not detect any spotted owls (Raedeke Associates, Inc. 1995).

A baseline survey of nesting raptors was performed at Camp Bonneville by Stalmaster and Associates in 1994. Thirty-three raptors were sighted at Camp Bonneville, including red-tailed hawks, Northern harriers, great horned owls, turkey vultures, and a raven. The survey reported a single osprey that was probably a migrant. The survey noted that limitations on field research time precluded complete coverage of Camp Bonneville and that the site was inaccessible due to poor road conditions (Stalmaster and Associates 1994).

An endangered species survey was performed in 1995 by Pentec Environmental, Inc. Field surveys were conducted for amphibians; reptiles; mammals; song and game birds; marsh birds; waterfowl and waterbirds; raptors; fish; and rare plants. The survey detected five target species (three animal species and two plant species). None of the animal species are listed as federal or state threatened or endangered. Among the three animal species, two are state listing candidates (Vaux's swift and the pileated woodpecker). The red-legged frog is a candidate for the federal list. In general, a candidate species is one that has been proposed for a threatened or endangered listing but there is inadequate information to support that species' decline. Among the two plant species, one is state-endangered (the hairy-stemmed checker-mallow) and one is state-sensitive (the small-flowered trillium) (Pentec Environmental 1995).

A review of the listings for national historic landmarks, the National Register Of Historic Places, determined eligible for the national register, state register of historic places, and properties removed from listings as of January 1993 did not reveal any properties or facilities located on Camp Bonneville (Washington Department of Community Development 1993). Additionally, a request for determination of eligibility for inclusion on the National Register of Historic Places submitted for the

Camp Killpack Cantonment was determined ineligible by the State Historic Preservation Officer (USACE, Seattle District 1986b).

A cultural resource reconnaissance was performed on selected areas of Camp Bonneville in 1980 in support of forest management. The reconnaissance did not result in any significant findings. The records research did not find evidence of any cultural resource surveys for the entire installation. The current Facility Manager reported that two possible Native American archaeological sites and one homestead refuse dump may exist within the installation.

4.0 INVESTIGATION RESULTS

This section describes the results of the EBS investigation. It discusses:

- Sources of potential contamination that have been addressed in prior reports
- Sources of potential contamination that have not been addressed by previous investigations
- Adjacent properties that may be potential sources of contamination to the installation property
- Areas containing contamination substances not regulated by CERCLA (non-CERCLA)
- Remediation activities that have occurred
- Real property within the installation property that will be retained by the U.S. Army (reserve enclaves)

4.1 PREVIOUSLY IDENTIFIED SOURCES OF POTENTIAL CONTAMINATION

Previous environmental investigations performed at Camp Bonneville have been limited to the two environmental compliance inspections identified in Section 2.1.2.2 of this EBS report. The results of these investigations revealed two potential sources of contamination.

4.1.1 Building 4475 LUST

The 275-gallon UST previously located at the refueling station (Building 4475, Figure 5-1, Parcel 15) was thought to be leaking because the fuel consumption and tank filling records did not coincide. Additionally, the inspection notes that the ground around the fuel site was heavily contaminated with fuel stains. This UST was removed in November 1995. During removal, the tank was found to be leaking. Three samples collected in the excavation were analyzed for Washington total petroleum hydrocarbons as diesel (WTPH-D), which ranged from 110 parts per million (ppm) to 2,600 ppm. The Washington state action level for WTPH-D is 200 ppm. After soil samples were collected, the excavation was backfilled with gravel. Additional soil was subsequently removed (in fiscal year [FY] 1997); however, closure documentation has not been finalized.

4.1.2 Vehicle Wash Point

The vehicle wash point located at the Camp Killpack Cantonment south of Building 4475 (Figure 5-1, Parcel 20) was identified in the Environmental Compliance Inspection as not having an OWS. The wash point has been used for washing mud from vehicles that have been involved in field training exercises. It consists of an unpaved pullout on the side of the road and a water hose on a hose rack. Water from washing vehicles would flow from the wash point to the surrounding area by overland flow. Local topography would direct this discharge into the adjacent stream.

No obvious signs of potential environmental impacts, such as staining, discoloration, or stressed vegetation, in the wash point area or in areas that would be affected by wastewater discharged from the wash point area were observed during the EBS inspection.

Petroleum hydrocarbons, metals, and other vehicle fluids are associated with releases at vehicle wash points. Because the vehicle wash point is reported to have been used for removal of mud or dirt only, it is considered to have a low probability of being a potential source of contamination.

4.2 POTENTIAL CONTAMINATION AREAS IDENTIFIED DURING THE EBS INVESTIGATION

The interviews, visual inspection, and records review identified the following potential contamination areas.

4.2.1 Historic Landfills

Four historic landfills are reported to exist at Camp Bonneville. They are described in the following sections.

4.2.1.1 Historic Landfill

A cultural resources survey performed in 1980 located a historic landfill east of the Camp Bonneville Cantonment and north of the sewage lagoon (Figure 5-1, Parcel 2) (University of Washington 1980). The cultural resources survey states that bottle fragments contained in the landfill date usage to the early 1900s. The survey describes the site as a four meter by five meter shallow depression. Neither

the length of use nor a comprehensive list of the quantity and types of trash at this site is known. Further documentation of this landfill was not found during the records review.

4.2.1.2 Sewage Lagoon Landfill

The second landfill was reported to have been partially excavated during the construction of the sewage lagoon in 1978 (Figure 5-1, Parcel 3). According to an interview conducted for this EBS, fill material was unearthed at the eastern and northern borders of the sewage lagoon. Neither the type or quantity of material located at this landfill nor the period of use is known. Documentation of this landfill was not found during the records review.

4.2.1.3 trash burial site

The trash burial site, which is considered the third landfill, is located south of the sewage lagoon (Figure 5-1, Parcel 5). This area is suspected to have been used as a trash burial area. According to an interview conducted for this EBS, the burial site is estimated to have been used from the mid- to late 1970s to the early to mid-1980s. This area contains items such as a refrigerator, a locker, wall boards, and paint cans. The size of the burial site is estimated to be 40 feet in length, 12 feet in width, and 8 feet in depth (Cummings 1997).

4.2.1.4 Demolition Area Historic Landfill (Landfill 4)

The fourth landfill is reportedly located at the demolition area in the north-central portion of the installation (Parcel 21). The landfill was reportedly used by Vancouver Barracks for disposal of building demolition debris in the mid-1960s. No municipal or medical wastes are known to have been disposed of in the landfill. The present Facility Manager reported that firearms are also buried at this location.

4.2.2 Historic Burn Area

A burn area is located adjacent to the trash burial site (Figure 5-1, Parcel 4). This area is not currently in use as a burn area, although wooden debris was piled up at the location at the time of the EBS. According to an interview conducted for this EBS, this area has been used on an infrequent basis to

burn wood and debris. Neither the length of use nor a comprehensive list of materials burned is known. Documentation of this burn area was not found during the records review.

4.2.3 Firing Ranges

Camp Bonneville contains numerous firing ranges as described in Section 3.4 of this EBS report. Historically, a variety of ammunition and weapon types have been used at the various ranges. These ranges have the potential to be environmentally impacted by their use as a firing range (e.g., soil contamination from ammunition components). Soil samples have not been taken to confirm the presence or absence of contamination. Additionally, these ranges likely have UXO, as discussed in Section 4.4.5 of this EBS report.

4.2.4 Buildings 1983 and 1962

Buildings 1983 and 1962 were burned in place at the Camp Bonneville Cantonment (Figure 5-1, Parcel 8). These buildings, originally built around the 1930s, are likely to have been painted with LBP. It is reasonable to suspect that if LBP was used, the lead in the paint was released to the surrounding soils when the buildings burned. No soil samples have been taken at the building sites to confirm the presence or absence of lead contamination.

4.2.5 Grease Pits

Three grease pits are located at Camp Bonneville; two at the Camp Bonneville Cantonment, north of Building 1828 (Figure 5-1, Parcel 6) and one at the Camp Killpack Cantonment, east of Building 4348 (Figure 5-1, Parcel 11). The pits are comprised of corrugated metal tubes, approximately two feet in diameter, that extend into gravel-filled pits to an unknown depth. The pits reportedly received cooking grease and oils from the mess halls. This disposal method is no longer practiced. An interview conducted for this EBS indicates there is a potential for the uncontrolled disposal of potentially hazardous substances in these pits. This could not be confirmed visually during the EBS site inspection due to the depth of the pits and the presence of nonhazardous refuse (i.e., soda cans, paper products) in the pits.

4.2.6 CS Gas Training Buildings

Two historic CS gas training buildings were identified at the installation, Building 1834 and a previous building whose location is marked by a burn site.

4.2.6.1 Building 1834

Building 1834 was used as a gas mask training chamber (Figure 5-1, Parcel 10). CS gas was used in this facility during training exercises. A residue was observed on the interior of this facility during the EBS site inspection, which was initially thought to be associated with tear gas; however, no reported releases to the environment are known to have occurred. The results of a subsequent investigation (see Memorandum of Record in Appendix F) indicated no hazardous substances are present either on the buildng materials of Building 1834 or in the surrounding surface soils (Section 4.5.2) (Hart Crowser 1996; Woodward-Clyde 1996).

4.2.6.2 CS Gas Training Building Burn Site

A building previously located north of Firing Range 7 (Figure 5-1, Parcel 25) was also used as a gas mask training chamber. This building was demolished and burned in place in the late 1970s. No residual hazardous substances from CS gas are expected to remain at this site because it decomposes rapidly with no persistent metabolites when burned and exposed to water (Micromedex, Inc. 1987); however, no environmental sampling results exist from which to evaluate the environmental condition of the property. It is also reported that there is a potential for chemical kits to be buried near the building.

4.2.7 Building 4475

According to an interview conducted for this EBS, Building 4475 reportedly had a maintenance pit that was located in the western portion of the facility and is currently covered with concrete (Figure 5-1, Parcel 12). This maintenance pit was an unlined excavation in the ground that potentially received vehicle fluids, such as oil or antifreeze, for an unknown period of time. Documentation of this maintenance pit was not found during the records review.

Additionally, the ground to the south of Building 4475, approximately 4 feet in width and 85 feet in length, was noted during the EBS site inspection to have stressed vegetation and red staining. This area receives the runoff from the galvanized steel roof of Building 4475. Finally, the area in front of the building was used for small-scale pesticide mixing and loading. Although no releases were reported, incidental spills may have occurred.

Soil samples have not been taken at this site to confirm the presence or absence of contamination.

4.2.8 Former Vehicle Maintenance Rack and Underground Storage Tank

According to an interview conducted for this EBS, a former vehicle maintenance rack located just east of Building 4476 (Figure 5-1, Parcel 14) was used for vehicle maintenance including draining engine fluids. The maintenance rack was reportedly constructed of two parallel ramps of timber, with gravel in between. The rack was demolished in the 1980s, and the site is now an open, gravel-covered area that gently slopes south toward the road.

The 275-gallon tank reportedly contained gasoline and was removed in 1978 when Building 4476 was constructed. According to an interview conducted for this EBS, the tank was intact, the excavation was not stained, and the soil in the excavation did not have a gasoline odor. A visual inspection of the area did not identify any obvious environmental impacts. Documentation of this maintenance rack was not found during the records review.

4.2.9 Aboveground Storage Tanks

Twenty 275-gallon ASTs are located at the Camp Bonneville Cantonment and three 275-gallon ASTs are located at the Camp Killpack Cantonment for storage of diesel used in association with the facility HVAC system. Incidental spillage is reported to have occurred during filling; however, the EBS site inspection did not note any evidence of environmental impact, such as sheen, staining, or stressed vegetation. The tanks have no secondary containment structures. Individually, these ASTs are below the reportable quantity but are located such that a 0.25-acre point source centered on each AST overlaps adjacent 0.25-acre point sources.

4.2.10 Lead in Soil

The majority of buildings at Camp Bonneville, including facilities at the cantonments and firing range structures, were constructed in the late 1920s to the 1930s. For purposes of this EBS, buildings constructed prior to 1978 are assumed to have been possibly painted with LBP. Additionally, wipe tests performed on some of the buildings at the Camp Killpack Cantonment by base personnel gave positive results for LBP. According to an interview conducted for this EBS, exterior maintenance of Camp Bonneville buildings included scraping and sanding painted buildings to prepare the surface for painting. It is reasonable to suspect that LBP remains in the surrounding soils.

4.2.11 Former Sewage Pond

A sewage pond was used for the Camp Bonneville Cantonment until 1978 (Figure 5-1, Parcel 17). This unlined pond may have received unknown hazardous wastes. The pond was filled in 1978 with clean fill dirt from the immediate area.

4.2.12 Suspected Drum Burial Site

It has been reported (anonymously) by an individual who claims to have worked at the installation that he had buried drums of unknown contents south of Building 4125 (Figure 5-1, Parcel 18).

4.2.13 Suspected Disposal Site

The same anonymous individual that reportedly buried drums south of Building 4125 (Section 4.2.12) also indicated that waste paint and solvent had been disposed of southeast of the Camp Killpack Cantonment (Figure 5-1, Parcel 19).

4.2.14 Demolition Areas

Two areas at the installation were used for demolishing UXO, accelerants, and miscellaneous explosives confiscated by local law enforcement agencies. Demolition Area 1 is located in the north-central area of the installation (Figure 5-1, Parcel 21). It probably has been in use since the late 1960s. It is also reported that the area had been used as a landfill (Section 4.2.1).
Demolition Area 2 is located in the central part of the installation (Figure 5-1, Parcel 22). This demolition area is reported to have been used in the years prior to the creation of Demolition Area 1.

4.2.15 Storage Buildings

Four buildings have been, or are, used to store hazardous materials and wastes: Buildings 1864, 4126, 4475B, and 4476. Buildings 1864 (Figure 5-1, Parcel 9) and 4126 (Figure 5-1, Parcel 16) were used to store 55-gallon drums of 2,4,5-T, 2,4-D, and an unknown amount of DDT. Building 4475B (Figure 5-1, Parcel 13) is used to store POL and antifreeze, and Building 4476 is a hazardous waste accumulation point. At the time of the EBS inspection, Building 4476 contained less than 55 gallons of used oil. Although no evidence of releases was observed during the EBS site inspection, the U.S. Army plans to sample soil adjacent to these buildings.

4.3 SOURCES OF POTENTIAL CONTAMINATION FROM ADJACENT OR SURROUNDING PROPERTY

The adjacent property is primarily used as forest land and for ranches and private residences. Almost all residences within 0.25 miles of the installation are located along the west and southwest boundaries. A 1990 7.5 minute quadrangle map (U.S. Geological Survey 1990) shows approximately 100 residences in this area. Because of the inaccessibility of the adjoining forest land and the low potential for impacts to the installation from residential areas, the visual survey of these areas was limited to a fenceline automobile survey of the west and southwest portion of the installation boundary. The automobile survey did not reveal any obvious environmental concerns. Significant environmental impacts from the adjacent properties at Camp Bonneville, although unlikely, should not be unquestionably ruled out.

Approximately 0.27 miles east of the southeast corner of the installation, on Livingston Mountain, is a microwave radio relay tower owned and operated by AT&T. The EBS interviews, records search, and visual inspections did not identify any environmental concerns associated with this property.

The radio relay facility consists of a fenced area approximately 150 feet by 75 feet that contains a two-story concrete building, approximately 100 feet by 30 feet, and an antenna tower. The property previously had two USTs for backup power generation, but these were closed in place in 1993. Petroleum hydrocarbons were not detected in soil sampled at the location of the tanks. The site no longer requires backup power generation, so fuel tanks are not present at the site. The site has no

waste streams, and the only storage of hazardous substances is sulfuric acid for backup power batteries.

4.4 NON-CERCLA RELATED ENVIRONMENTAL, HAZARD, AND SAFETY ISSUES

The following summarizes the results of the survey pertaining to non-CERCLA contamination substances as well as any hazard or safety issues documented.

4.4.1 Asbestos-Containing Material

An asbestos survey program has not been completed at this installation. In accordance with OSHA and the Washington Industrial Safety and Health Act, buildings constructed prior to 1980 are assumed to contain asbestos in materials such as boiler insulation, building siding, or roof materials. Buildings at Camp Bonneville assumed to contain asbestos are identified in Section 5.1.3.

4.4.2 Lead-Based Paint

An LBP survey program has not been completed at this installation. Wipe tests performed on some of the buildings at the Camp Killpack Cantonment by base personnel gave positive results for LBP. For purposes of this EBS, buildings constructed prior to 1978 are assumed to have been possibly painted with LBP. Buildings at Camp Bonneville known or assumed to contain LBP are identified in Section 5.1.3.

4.4.3 Polychlorinated Biphenyls

The Fort Lewis Public Works Operations and Maintenance Division sampled 17 transformers at Camp Bonneville in 1990 (U.S. Army, Ft. Lewis, OMD-DPW 1995). All 17 transformer test results were below the EPA action level for PCBs. No additional transformers were identified during the EBS site inspection.

4.4.4 Radon

A radon survey has not been performed at this installation.

4.4.5 Unexploded Ordnance

The interview conducted for this EBS confirms the presence of UXO at Camp Bonneville; however, a complete on-site search for UXO has not been performed. Several areas are suspected of containing UXO. These areas are associated with the firing points and impact areas identified on Figure 3-1. Because UXO has been found outside these areas, an expanded area of potential UXO has been qualified (see Section Five).

4.4.6 Radionuclides

The use of radiological items at Camp Bonneville has been confined to low-light-level rifle sights containing promethium-147 or tritium, compasses containing tritium, and luminous dials and instruments containing low levels of tritium and radium. These items are transported back to the base of origin after training is completed; therefore, disposal of radiological materials at Camp Bonneville is unlikely (ESE 1983).

4.4.7 Pesticide, Herbicide, and Fungicide Usage

The present use of pesticides, herbicides, and fungicides at Camp Bonneville is limited to manufacturer recommended usage. Pest control services are provided by the certified pest control personnel from Fort Lewis. Camp Bonneville stored 2,4,5-T; 2,4-D; and DDT (Buildings 4126 and 1833) until 1980 when these materials were sent to Fort Lewis. Pesticides are not currently stored at Camp Bonneville.

Based on information obtained from interviews of installation personnel (Section 2.1.5), the past uses of pesticides, herbicides, and fungicides are not well documented, and information was not available prior to 1968. A small truck-mounted sprayer from Ft. Lewis was used for herbicide spraying along roads. Weeds in the firing ranges were controlled by mowing. Spraying in the firing ranges and cantonments probably also occurred. The herbicides used could not be identified. Small-scale mixing and loading was done in front of Building 4475, but no spills or other releases were reported for this area. No disposal is reported to have occurred on the installation during the period for which information is available.

4.5 REMEDIATION EFFORTS

The Camp Bonneville installation has not undergone any previous environmental investigations focused on hazardous materials. Historically, activities performed at Camp Bonneville that would necessitate an environmental investigation have been limited. Therefore, remediation efforts at this installation have been limited. This section describes past, present, and planned remediation efforts.

4.5.1 Past Remediation Efforts

Previous remediation efforts at Camp Bonneville are limited to the removal of two USTs.

- In 1978, a 275-gallon gasoline UST was removed from the current location of Building 4476 (Figure 5-1). Documentation concerning this removal was not located. However, an interview conducted for this EBS indicated that the excavation did not have a gasoline odor, and the tank appeared intact.

- In 1995, a 550-gallon diesel fuel system composed of one 275-gallon AST and one 275-gallon UST was removed east of Building 4475. Documentation concerning the removal indicates staining and a diesel odor in the excavation. Some noticeably contaminated soil was removed, and three samples were collected from the excavation wells and floor. Up to 2,600 ppm WTPH-D was detected in the samples. The pit was backfilled with clean gravel. Additional soil was subsequently removed (during FY 1997); however, closure documentation has not been finalized.

4.5.2 Ongoing Remediation Efforts

An investigation of Building 1834 was completed during the time period in which the EBS was conducted. Residue observed on the interior of the building was initially thought to be a concern, possibly tear gas (also known as o-chlorobenzal-malononitrile or CS gas). The investigation results indicated no hazardous substances are present on the building materials or in the surrounding surface soils (Hart Crowser 1996; Woodward-Clyde 1996). The building will be torn down as soon as clearance from the Washington State Historic Preservation Officer (SHPO) is received.

4.5.3 Planned Remediation Efforts

The investigation and/or remediation activities related to the following projects are planned and/or ongoing at Camp Bonneville. Documentation regarding the level of effort of these activities was not available for this EBS report.

- Asbestos survey and abatement
- LBP survey and abatement
- LUST site remediation (Building 4475)
- UXO archive search report, site survey, and removal
- Hazardous waste accumulation (Building 4476) and hazardous materials storage (Building 4475B)
- Pesticide storage facilities (Buildings 1864 and 4126)
- Historic burn areas
- Former vehicle maintenance rack and former UST at Building 4476
- Wash point
- Former sewage pond
- Suspected drum burial site
- Suspected disposal site
- Historic landfills
- Grease pits
- Burned building sites
- Building 4475 (vehicle maintenance pit, pesticide mixing and loading area, stressed vegetation)

4.6 RESERVE ENCLAVES

Currently, there are no reserve enclaves identified at Camp Bonneville.

5.0 ENVIRONMENTAL CONDITION OF THE PROPERTY AREA

This section presents the parcelization of the BRAC property in accordance with the criteria described in CERFA guidance and the DOD *BCP Guidebook* (DOD 1993).

5.1 PARCEL DESIGNATIONS

Based on a review of installation documents; federal, state, and local records; and a site visit, including employee interviews and visual inspections of the property and adjacent properties, Woodward-Clyde divided the Camp Bonneville installation into BRAC parcels that represent the environmental condition of the property area. The BRAC parcels and corresponding categorizations are identified in Table 5-1a and on the CERFA map, Figure 5-1. Areas containing non-CERCLA contamination substances are identified in Table 5-1b and delineated separately as qualified parcels. Qualified parcels overlay all environmental condition of the property categories (Categories 1 through 7). Parcels are labeled as described in Section 1.3. A 25-acre grid coordinate system is overlaid on the CERFA map to facilitate the parcelization discussion by geographically locating the various parcels.

Parcel boundaries are drawn using the best available information on the extent of contamination and do not follow map grids lines. Small point sources of contamination or storage, such as ASTs, are delineated by circular 0.25-acre parcels centered on the source, as stipulated in DOD guidance. For consistency and to facilitate the summation of acreages, parcel acreages were calculated to two decimal places using the digitized map (Figure 5-1) and AutoCad Release 12. This method is not meant to imply an accuracy to one one-hundredth of an acre.

5.1.1 Category 1 Parcels

Woodward-Clyde's survey and subsequent parcelization of Camp Bonneville identified two parcels, approximately 3,823.26 acres, as Category 1 parcels. This section describes the Category 1 parcels and their locations on Figure 5-1.

BRAC Parcel Number and Label 1(1)

CERFA Map Location 10,7

This parcel has been designated as Category 1 as there has been no documented storage of hazardous substances or petroleum products; nor has there been release, disposal, or migration from an adjacent property of hazardous substances or petroleum products within the identified area.

BRAC Parcel Number and Label 10(1)

CERFA Map Location 6,9 and Camp Bonneville Cantonment Inset

Building 1834

This parcel is associated with Building 1834. Residue observed on the interior of the building was initially thought to be a potential concern, possibly tear gas (also known as o-chlorobenzal-malononitrile or CS gas). A subsequent investigation of this area was conducted and no hazardous substances are present on the building materials or in the surrounding surface soils. Therefore, this parcel has been designated as Category 1.

5.1.2 Category 2 Parcels

Three parcels, approximately 3.00 acres, were identified as Category 2 parcels. This section describes the Category 2 parcels and their locations on Figure 5-1.

BRAC Parcel Number and Label 7(2)PS

CERFA Map Location 6,9 and Camp Bonneville Cantonment Inset

Camp Bonneville Cantonment ASTs

This parcel is associated with twenty-four 275-gallon ASTs. There has been no documented release associated with these ASTs other than incidental spillage that has occurred when the tanks are filled. No stressed vegetation or stains indicating an environmental impact were noted during the visual inspection. Individually, these ASTs are below the reportable quantity but are located such that a 0.25-acre point source centered on each AST overlaps adjacent 0.25-acre point sources. There have been no documented releases associated with these ASTs, and no evidence was found of disposal, or migration from an adjacent property, of hazardous substances or petroleum products. This parcel has been designated as Category 2.

BRAC Parcel Number and Label 23(2)HS

CERFA Map Location 6,9 and Camp Bonneville Cantonment Inset

Building 1815

This parcel is associated with the storage of greater than one pound (reportable quantity) of 12 percent sodium hypochlorite for water treatment at Building 1815. There have been no documented releases associated with this building, and no evidence was found of disposal, or migration from an adjacent property, of hazardous substances or petroleum products. This parcel has been designated as Category 2.

BRAC Parcel Number and Label 24(2)HS

CERFA Map Location 2,8

Building 4522

This parcel is associated with the storage of greater than one pound (reportable quantity) of 12 percent sodium hypochlorite for water treatment at Building 4522. There have been no documented releases associated with this building, and no evidence was found of disposal, or migration from an adjacent property, of hazardous substances or petroleum products. This parcel has been designated as Category 2.

5.1.3 Category 3 Parcels

Currently, there are no Category 3 parcels at Camp Bonneville.

5.1.4 Category 4 Parcels

Currently, there are no Category 4 parcels at Camp Bonneville.

5.1.5 Category 5 Parcels

One parcel, comprising approximately 0.08 acres, was identified as a Category 5 parcel. This section describes the Category 5 parcel and its location on Figure 5-1.

BRAC Parcel Number and Label 15(5)PR

CERFA Map Location 3,7 and Camp Killpack Cantonment Inset

Building 4475 LUST

A 550-gallon diesel fuel system consisting of one 275-gallon AST and one 275-gallon UST, located east of Building 4475, was removed in 1995. Soil samples collected from the excavation prior to backfilling indicated residual petroleum contamination. Additional soil removal has been conducted (in FY 1997); however, closure documentation has not been finalized. A three- to four-foot wide strip on the south side of Building 4475 has stressed vegetation and red staining, possibly from drainage off the galvanized metal roof. This parcel has been designated as Category 5.

5.1.6 Category 6 Parcels

Currently, there are no Category 6 parcels at Camp Bonneville.

5.1.7 Category 7 Parcels

Nineteen parcels, approximately 13.66 acres, were identified as Category 7 parcels. This section describes the Category 7 parcels and their locations on Figure 5-1.

BRAC Parcel Number and Label 2(7)HR(P)

CERFA Map Location 7,9

Historic Landfill

This parcel is associated with the abandoned landfill located northwest of the sewage lagoon. The effects of the wastes disposed of at this site are unknown. Additional evaluation of this area is warranted; therefore, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 3(7)HR(P)

CERFA Map Location 7,9

Sewage Lagoons and Historic Landfill

This parcel is associated with the sewage lagoons and the historic landfill discovered at the southeast corner of the sewage lagoon. The type and quantity of material located at the landfill is unknown, and

it is unknown whether the sewage lagoons are impacting soil or groundwater. Additional evaluation of this area is warranted; therefore, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 4(7)HR(P)
CERFA Map Location 7,9
Historic Burn Area

This parcel is associated with the historic burn area. The length of use and environmental effects of the burn area are unknown. Additional evaluation of this area is warranted; therefore, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 5(7)HR(P)
CERFA Map Location 8,9
trash burial site

This parcel is associated with the trash burial site. Documentation was not found that provides information on the type and quantity of material located at this site. However, an interview conducted during the EBS indicated that the burial site was used for the disposal of trash, such as a refrigerator, a locker, wall boards, and paint cans. Additional evaluation of this area is warranted; therefore, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 6(7)HR(P)
CERFA Map Location 6,9 and Camp Bonneville Cantonment Inset
Grease Pits

This parcel is associated with two abandoned grease pits located north of Building 1828 at the Camp Bonneville Cantonment. According to an interview with installation personnel, the grease pits received waste from the mess hall, and there is the potential for other materials to have been disposed of in these pits. Additional evaluation of this area is warranted; therefore, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 8(7)HR(P)

CERFA Map Location 6,9 and Camp Bonneville Cantonment Inset

Buildings 1983 and 1962

This parcel is associated with Buildings 1983 and 1962. Buildings 1983 and 1962 were destroyed by fire, potentially impacting the soils surrounding the buildings. Additional evaluation of this area is warranted; therefore, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 9(7)HR(P)

CERFA Map Location 6,9 and Camp Bonneville Cantonment Inset

Building 1864

This parcel is associated with the storage of 55-gallon drums of 2,4,5-T; 2,4-D; and an unknown amount of DDT at Building 1864 from 1977 to 1980. Although there has been no documented release associated with the storage of these chemicals, or potential impacts observed during the EBS, the U.S. Army plans to sample soil around this building. This parcel has been designated as Category 7.

BRAC Parcel Number and Label 11(7)HR(P)

CERFA Map Location 3,7 and Camp Killpack Cantonment Inset

Grease Pit

This parcel is associated with the abandoned grease pit located east of Building 4368 at the Camp Killpack Cantonment. According to an interview with installation personnel, the grease pit received waste from the mess hall, and there is the potential for other materials to have been disposed of in this pit. Additional evaluation of this area is warranted; therefore, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 12(7)PR(P)/HR(P)

CERFA Map Location 3,7 and Camp Killpack Cantonment Inset

Building 4475

This parcel includes areas associated with Building 4475. Building 4475 had a maintenance pit that reportedly received waste oil and antifreeze. A three- to four-foot wide strip on the south side of Building 4475 has stressed vegetation and red staining, possibly from drainage off the galvanized metal

roof. The area in front of the building was used for pesticides mixing and loading. Additional evaluation of this area is warranted; therefore, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 13(7)PR(P)/HR(P)
CERFA Map Location 3,7 and Camp Killpack Cantonment Inset
Building 4476A

This parcel is associated with Buildings 4475B and 4476A. Building 4475B is used for storage associated with vehicle maintenance, including POLs. Building 4476A is a storage shed that contains a 1,000-gallon diesel AST with secondary containment. Although there has been no documented release associated with the storage of POLs or the AST, or potential impacts observed during the EBS, the U.S. Army plans to sample soils around these buildings. This parcel has been designated as Category 7.

BRAC Parcel Number and Label 14(7)PR(P)/HR(P)
CERFA Map Location 3,7 and Camp Killpack Cantonment Inset
Former Vehicle Maintenance Rack and UST

This parcel is associated with the location of a former vehicle maintenance rack, located just east of Building 4476. The soil beneath the vehicle maintenance rack reportedly received waste oil and antifreeze. Also, a 275-gallon gasoline UST was removed from the location of Building 4476. Documentation of this removal was not found. Additional evaluation of this area is warranted; therefore, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 16(7)HR(P)
CERFA Map Location 3,7 and Camp Killpack Cantonment Inset
Building 4126

This parcel is associated with the storage of 55-gallon drums of 2,4,5-T; 2,4-D; and an unknown amount of DDT at Building 4126 until 1977. The year that storage began is unknown. Although there has been no documented release associated with the storage of these chemicals, or potential impacts observed during the EBS, the U.S. Army plans to sample soil around these buildings. This parcel has been designated as Category 7.

BRAC Parcel Number and Label 17(7)HR(P)

CERFA Map Location 6,8 and Camp Bonneville Cantonment Inset

Former Sewage Pond

A sewage pond was used for the Camp Bonneville Cantonment until 1978. This unlined pond may have received unknown hazardous wastes. Because a site investigation and remediation have not been conducted, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 18(7)HR(P)

CERFA Map Location 3,7

Suspected Drum Burial Site

It has been reported (anonymously) by an individual who claims to have worked at the installation that he had buried drums of unknown contents south of Building 4125. Because a site investigation and remediation have not been conducted, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 19(7)HR(P)

CERFA Map Location 4,6

Suspected Disposal Site

It has been reported (anonymously) by an individual who claims to have worked at the installation that waste paint and solvent were disposed of southeast of the Camp Killpack Cantonment. Because a site investigation and remediation have not been conducted, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 20(7)PR(P)/HR(P)

CERFA Map Location 3,7 and Camp Killpack Cantonment Inset

Wash Point

This parcel is associated with a vehicle wash point south of Building 4475. Contaminants associated with vehicle was racks include petroleum hydrocarbons, metals, and other vehicle fluids. Although no impacts were observed at this site, the U.S. Army plans to investigate the site for potential impacts. This parcel has been designated as Category 7.

BRAC Parcel Number and Label 21(7)HR(P)

CERFA Map Location 9,12

Demolition Area 1 and Landfill 4

This parcel, located in the north-central part of the installation, has most recently been used as a demolition area for destroying UXO, accelerants, and explosives confiscated by local law enforcement agencies. A landfill reportedly located at this demolition area was used by Vancouver Barracks for disposal of building demolition debris in the mid-1960s. Because this site may be impacted by explosives residues and landfill contents, this parcel has been designated as Category 7.

BRAC Parcel Number and Label 22(7)HR(P)

CERFA Map Location 10,8

Demolition Area 2

This parcel, located in the central part of the installation, is associated with an area formerly used for destroying UXO, accelerants, and miscellaneous explosives confiscated by local law enforcement agencies. Because this former disposal site may be impacted by explosives residues, it has been designated as Category 7.

BRAC Parcel Number and Label 25(7)HR(P)

CERFA Map Location 6,7

CS Gas Training Building Burn Site

This parcel, located in the central part of the installation north of Firing Range 7, is a burn site associated with a building that was used for tear gas (o-chlorobenzal-malononitrile or CS gas) mask training. This chemical has mild systemic toxicity and, when heated to decomposition, can release cyanide gas. No residual hazardous substances from CS gas are expected to remain at this site because it decomposes rapidly with no persistent metabolites when burned and exposed to water (Micomedex, Inc. 1987). However, because of the potential for release of o-chlorobenzal-malononitrile and its by-products to the environment during burning of the building, further investigation is warranted. It was also reported taht there is a potneital for chemical kits to be buried near the building. This parcel has been designated as Category 7.

5.1.8 Qualified Parcels

In determining the qualified parcels, Woodward-Clyde observed the following guidelines:

- If a complete asbestos survey has not been conducted, then buildings constructed prior to 1985 are assumed to contain ACM. An "A(P)" for the possible presence of asbestos is used to qualify the parcel.

- If a complete LBP survey has not been conducted, then buildings constructed prior to 1978 are assumed to contain LBP. An "L(P)" for the possible presence of LBP on the building or in the surrounding soils is used to qualify the parcel.

- Areas used as firing ranges (e.g., impact areas and firing points) are assumed to potentially contain UXO and ammunition components (e.g., metal casings and projectiles from small arms, projectiles from large ammunition, and explosives residues). The potential presence of these substances is the result of intended use for military training and not a result of release or disposal. Therefore, areas potentially containing UXO or ordnance fragments are not categorized by the environmental condition of property categories but are designated as qualified for UXO. The U.S. Army is actively implementing a UXO program, which includes site surveys and cleanup. An "X" for the presence of UXO and ammunition components is used to qualify the parcel.

Forty-one parcels were identified as qualified parcels, as described in Table 5-1b and illustrated on the CERFA map, Figure 5-1. Forty parcels are associated with installation buildings that potentially contain ACM and/or LBP.

One parcel qualified for UXO, encompassing the entire installation, is associated with firing points, impact areas, and range areas, as described in Section 3.4. It is not likely that UXO is present in the airstrip, cantonment areas, or in the road from the entrance to the cantonment areas.

Table 5-1a
BRAC PARCEL DESCRIPTIONS
CAMP BONNEVILLE, WASHINGTON

BRAC PARCEL NUMBER AND LABEL[a]	LOCATION (X,Y COORDINATES)	APPROXIMATE SIZE (ACRES)[b]	ENVIRONMENTAL CONDITION CATEGORY NUMBER	BASIS	EBS SOURCE OF EVIDENCE[c]	REMEDIATION/ MITIGATION
1(1)	10,7	3,822.72	1	This area does not have a history of storage, release, or disposal, or migration from adjacent properties of hazardous substances or petroleum products.	15	No remediation is necessary.
2(7)HR(P) Historic Landfill	7,9	0.25	7	A cultural resources survey at this site noted disturbed ground with evidence of use as a sanitary type landfill. A specimen from this site dates the use to the early 1900s.	5	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
3(7)HR(P) Sewage Lagoons and Historic Landfill	7,9	2.76	7	This parcel is associated with sewage lagoons in use since 1978. A landfill was discovered during excavation for the sewage lagoons. It is estimated that this landfill was used from the 1940s to 1950s; however, the type and quantity of material located at this site is unknown. Twelve percent sodium hypochlorite above reportable quantities is stored in Building 1995.	15	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
4(7)HR(P) Historic Burn Area	7,9	0.25	7	This is a reported burn site. There is a lack of documentation supporting the existence of or the type and quantity of material burned at this site.	15	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
5(7)HR(P) Trash Burial Site	8,9	0.25	7	This is a reported trash burial site. There is a lack of documentation supporting the existence of or the type and quantity of material buried at this site.	15	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.

Table 5-1a
(Continued)

BRAC PARCEL NUMBER AND LABEL[a]	LOCATION (X,Y COORDINATES)	APPROXIMATE SIZE (ACRES)[b]	ENVIRONMENTAL CONDITION CATEGORY NUMBER	BASIS	EBS SOURCE OF EVIDENCE[c]	REMEDIATION/ MITIGATION
6(7)HR(P) Grease Pit	6,9 and Camp Bonneville Cantonment Inset	0.25	7	These two grease pits, located across from Building 1828, are corrugated metal pipes that extend into an underground pit filled with gravel. They were designed to accept grease from the mess hall; however, there is a potential for other substances to have been discarded in these pits.	15	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
7(2)PS Camp Bonneville Cantonment AST	6,9 and Camp Bonneville Cantonment Inset	2.50	2	This area contains twenty-four 275-gallon ASTs that store diesel to power the HVAC system associated with individual facilities. There is no history or reports of a release.	15	No remediation is currently planned.
8(7)HR(P) Former Buildings 1983 and 1962	6,9 and Camp Bonneville Cantonment Inset	0.37	7	Buildings 1983 and 1962 were located at this site and were destroyed by fire. There is a possibility of a release of lead or other substances associated with the use or design of the buildings.	15	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
9(7)HR(P) Building 1864	6,9 and Camp Bonneville Cantonment Inset	0.25	7	Building 1864 stored 55-gallon drums of 2,4,5-T; 2,4-D; and an unknown amount of DDT from 1977 to 1980. There is no evidence of a release of these chemicals. However, there is potential for past release of these chemicals.	15	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
10(1) Building 1834	6,9 and Camp Bonneville Cantonment Inset	0.25	1	This facility is the gas mask training chamber and was used for an unknown period. This building was investigated for tear gas (o-chlorobenzal-malononitrile) residue.	15, Appendix F	Investigation results indicated no hazardous substances are present on building materials or in surrounding surface soils.

Table 5-1a
(Continued)

BRAC PARCEL NUMBER AND LABEL[a]	LOCATION (X,Y COORDINATES)	APPROXIMATE SIZE (ACRES)[b]	ENVIRONMENTAL CONDITION CATEGORY NUMBER	BASIS	EBS SOURCE OF EVIDENCE[c]	REMEDIATION/ MITIGATION
11(7)HR(P) Grease Pit	3,7 and Camp Killpack Cantonment Inset	0.25	7	This grease pit, located across from Building 4368, is a corrugated metal pipe that extends into an underground pit filled with gravel. It was designed to accept grease from the mess hall; however, there is a potential for other substances to have been discarded in this pit.	15	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
12(7)PR(P)HR(P) Building 4475	3,7 and Camp Killpack Cantonment Inset	0.25	7	Building 4475 had a maintenance pit that reportedly received waste oil and antifreeze. The pit is now covered by the concrete floor of the building. Small scale pesticides mixing and loading occurred in front of the building. A three- to four-foot wide strip on the south side of Building 4475 has stressed vegetation and red staining, possibly from drainage off the galvanized metal roof.	15, 16	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
13(7)PR(P)/HR(P) Buildings 4476A and 4475B	3,7 and Camp Killpack Cantonment Inset	0.13	7	Building 4475B is used for storage. During the EBS visual inspection, four 5-gallon drums of oil, four 5-gallon drums of antifreeze, and eight 5-gallon drums of transmission oil were observed. Building 4476A is a storage shed that contains a 1,060-gallon AST with secondary containment. Although no evidence of releases was observed, the U.S. Army plans to sample soil at these locations because of potential past releases of these chemicals.	15	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.

Table 5-1a
(Continued)

BRAC PARCEL NUMBER AND LABEL[a]	LOCATION (X,Y COORDINATES)	APPROXIMATE SIZE (ACRES)[b]	ENVIRONMENTAL CONDITION CATEGORY NUMBER	BASIS	EBS SOURCE OF EVIDENCE[c]	REMEDIATION/ MITIGATION
14(7)PR(P)/HR/(P) Former Vehicle Maintenance Rack and UST	3,7 and Camp Killpack Cantonment Inset	0.25	7	Building 4476 is a hazardous waste accumulation point used to store waste oil and other vehicle fluids. This former location of a vehicle maintenance rack reportedly received waste oil and antifreeze. A UST was removed without documentation at the location of Building 4476.	15	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
15(5)PR Building 4475 LUST	3,7 and Camp Killpack Cantonment Inset	0.08	5	A 275-gallon AST and a 275-gallon UST located east of Building 4475 were removed in 1995. Evidence of soil contamination was noted during removal.	15	Additional soil removal was conducted in fiscal year 1997; however, closure documentation has not been finalized.
16(7)HR(P) Building 4126	3,7 and Camp Killpack Cantonment Inset	0.25	7	Building 4126 was used to store 55-gallon drums of 2,4,5-T; 2,4-D; and an unknown amount of DDT until 1977. There is no evidence of a release of these chemicals; however, there is potential for past release of these chemicals.	15	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
17(7)HR(P) Former Sewage Pond	6,8 and Camp Bonneville Cantonment Inset	0.25	7	This area is the location of a former open sewage pond.	EBS Interview	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
18(7)HR(P) Suspected Drum Burial Site	3,7	0.25	7	This area reportedly contains buried drums of unknown contents.	Reported Anonymously	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.

Table 5-1a
(Continued)

BRAC PARCEL NUMBER AND LABEL[a]	LOCATION (X,Y COORDINATES)	APPROXIMATE SIZE (ACRES)[b]	ENVIRONMENTAL CONDITION CATEGORY NUMBER	BASIS	EBS SOURCE OF EVIDENCE[c]	REMEDIATION/ MITIGATION
19(7)HR(P) Suspected Disposal Site	4,6	0.25	7	Waste paint and solvent was reportedly disposed of in this area.	Reported Anonymously	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
20(7)PR(P)/HR(P) Wash Point	3,7 and Camp Killpack Cantonment Inset	0.25	7	Vehicle washing may result in release of POLs, other vehicle fluids, and metals.	EBS Site Inspection	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
21(7)HR(P) Demolition Area 1 and Landfill 4	9,12	4.60	7	This area was used for the demolition of UXO and reportedly used as a landfill for disposal of building demolition debris.	EBS Interview, 15	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
22(7)HR(P) Demolition Area 2	10,8	2.30	7	This area was used for the demolition of UXO.	15	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.
23(2)HS Building 1815	6,9 and Camp Bonneville Cantonment Inset	0.25	2	Building 1815 stores greater than one pound reportable quantity of 12 percent sodium hypochlorite for water treatment.	EBS Site Inspection	No remediation is necessary.
24(2)HS Building 4522	2,8	0.25	2	Building 4522 stores greater than one pound reportable quantity of 12 percent sodium hypochlorite for water treatment.	EBS Site Inspection	No remediation is necessary.

Table 5-1a
(Continued)

BRAC PARCEL NUMBER AND LABEL[a]	LOCATION (X,Y COORDINATES)	APPROXIMATE SIZE (ACRES)[b]	ENVIRONMENTAL CONDITION CATEGORY NUMBER	BASIS	EBS SOURCE OF EVIDENCE[c]	REMEDIATION/ MITIGATION
25(7)HR(P)	6,7	0.25	7	The building was a tear gas mask training chamber and was used for an unknown period. The building was destroyed by fire.	EBS Site Inspection	Investigation and, if necessary, remediation are planned under the BRAC 95 Program.

Notes:

[a] BRAC parcel label definitions are as follows:

PS = petroleum storage
PR = petroleum release or disposal
HS = hazardous substance storage
HR = hazardous substance release or disposal

Qualified parcel label definitions are as follows:

A = asbestos-containing material
L = lead-based paint
P = polychlorinated biphenyls
R = radon
X = UXO and/or ordnance fragments
RD = radionuclides
(P) = possible (unverified)

[b] Acreage figures are approximate; they have been calculated using AutoCad Release 12.

[c] EBS Source of Evidence numbers refer to documents listed in Table 2-1 of this report.

Table 5-1b
QUALIFIED PARCEL DESCRIPTIONS
CAMP BONNEVILLE, WASHINGTON

QUALIFIED PARCEL NUMBER AND LABEL[a]	LOCATION (X,Y COORDINATES)	APPROXIMATE SIZE (ACRES)[b]	BASIS	EBS SOURCE OF EVIDENCE[c]	REMEDIATION/ MITIGATION
1Q-X(P)	1-16, 1-13	3,840.00	This area is potentially impacted by activities associated with firing points and impact areas, such as lead contamination, and contains UXO due to past or current use as a firing range. This area also includes three ammunition bunkers used to store ammunition. There is a potential for ammunition to be buried in the soil mound. Although this area comprises the entire installation, it is unlikely that UXO is present in the airstrip; Camp Killpack Cantonment or Camp Bonneville Cantonment areas; or along the road that leads from the entrance of the installation to the two cantonments.	15	UXO search and removal are planned for FY 1997.
1-1833Q-A(P)/L(P)	6,9	0.02	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-1980Q-A(P)/L(P)	6,9	0.05	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4155Q-A(P)/L(P)	3,7	0.02	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4314Q-A(P)/L(P)	3,7	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4316Q-A(P)/L(P)	3,7	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4325Q-A(P)/L(P)	3,7	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4327Q-A(P)/L(P)	3,7	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.

Table 5-1b
(Continued)

QUALIFIED PARCEL NUMBER AND LABEL[a]	LOCATION (X,Y COORDINATES)	APPROXIMATE SIZE (ACRES)[b]	BASIS	EBS SOURCE OF EVIDENCE[c]	REMEDIATION/ MITIGATION
1-4337Q-A(P)/L(P)	3,7	0.04	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4345Q-A(P)/L(P)	3,7	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4348Q-A(P)/L(P)	3,7	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4356Q-A(P)/L(P)	3,7	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4364Q-A(P)/L(P)	3,7	0.02	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4366Q-A(P)/L(P)	3,7	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4368Q-A(P)/L(P)	3,7	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4377Q-A(P)/L(P)	3,7	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4378Q-A(P)/L(P)	3,7	0.004	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4387Q-A(P)/L(P)	3,7	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4389Q-A(P)/L(P)	3,7	0.10	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
1-4398Q-A(P)/L(P)	3,7	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.

Table 5-1b
(Continued)

QUALIFIED PARCEL NUMBER AND LABEL[a]	LOCATION (X,Y COORDINATES)	APPROXIMATE SIZE (ACRES)[b]	BASIS	EBS SOURCE OF EVIDENCE[c]	REMEDIATION/ MITIGATION
7-1826Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.04	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
7-1828Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.02	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
7-1837Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
7-1847Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
7-1848Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.05	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997
7-1857Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.03	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
7-1867Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.04	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
7-1911Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.05	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
7-1920Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.01	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
7-1922Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.05	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
7-1930Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.005	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
7-1932Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.05	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.

Table 5-1b
(Continued)

QUALIFIED PARCEL NUMBER AND LABEL[a]	LOCATION (X,Y COORDINATES)	APPROXIMATE SIZE (ACRES)[b]	BASIS	EBS SOURCE OF EVIDENCE[c]	REMEDIATION/ MITIGATION
7-1934Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.04	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
7-1940Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.06	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
7-1942Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.05	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
8-1963Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.04	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
9-1864Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.01	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
10-1834Q-A(P)/L(P)	6,9 and Camp Bonneville Cantonment Inset	0.02	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
12-4475Q-A(P)/L(P)	3,7 and Camp Killpack Cantonment Inset	0.04	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
16-4125Q-A(P)/L(P)	3,7 and Camp Killpack Cantonment Inset	0.02	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.
16-4126Q-A(P)/L(P)	3,7	0.01	Possible ACM and LBP due to the age of the building.	12	Survey and abatement, as required, are planned for FY 1997.

Notes:

[a] BRAC parcel label definitions are as follows:
- PS = petroleum storage
- PR = petroleum release or disposal
- HS = hazardous substance storage
- HR = hazardous substance release or disposal

Qualified parcel label definitions are as follows:
- A = asbestos-containing material
- L = lead-based paint
- P = polychlorinated biphenyls
- R = radon
- X = UXO and/or ordnance fragments
- RD = radionuclides
- (P) = possible (unverified)

[b] Acreage figures are approximate; they have been calculated using AutoCad Release 12.

[c] EBS Source of Evidence numbers refer to documents listed in Table 2-1 of this report.

AGI Technologies. 1995. *Pollution Prevention Plan, Vancouver Barracks and Camp Bonneville*. U.S. Army, I Corps and Fort Lewis DPW. Contract No. DACA67-93-D-17-DOI.

Clark County Department of Community Development (Craig Greenleaf). 1994a. *Determination of Nonsignificance*.

_____ (Craig Greenleaf). 1994b. *Revised Mitigated Determination of Nonsignificance*.

Cummings, Jerry. 1996a. Personal Communication with Woodward-Clyde, February 9, 1996.

———. 1996b. Personal Communication with Woodward-Clyde, August 8, 1996.

———. 1997. Personal Communications with Woodward-Clyde, January 22, 1997.

Department of Defense. 1993. *BRAC Cleanup Plan (BCP) Guidebook.*

Department of the Interior, U.S. Fish and Wildlife Service (David Frederick). 1995. Letter to Gary D. Stedman, Ft. Lewis ENRD-ERB, Providing Listed and Proposed Endangered, Threatened and Candidate Species.

Environmental Science and Engineering, Inc. (B.N. McMaster, et al.) 1983. *Installation Assessment of the HQ, I Corps and Ft. Lewis, Washington and the Subinstallations Yakima Firing Center, Camp Bonneville, and Vancouver Barracks.*

Foss Environmental. 1994. *Underground Storage Tank Decommissioning, Jones Property, 22601 NE 139th.*

Generator Annual Report. 1995.

Geo Recon International (Rinita Dalan and Steve Wilke). 1981. *Cultural Resource Survey, Forest Management Project, Ft. Lewis and Camp Bonneville, Washington, for U.S. Army, Ft. Lewis.* Contract No. DAKF57-80-C-0207

Hart Crowser. 1996. *Draft Pre-Demolition Survey, CS Gas Chamber Building, Camp Bonneville, Vancouver, Washington.*

Heritage Research Associates. 1986. *A Resource Protection Planning Process Identification of Prehistoric Archaeological Resources in the Lower Columbia Study Unit.*

John Graham Company. 1979. Map: General Storm Sewer Map. Prepared for U.S. Army Corps of Engineers, Sacramento District.

Micromedex, Inc. (Denver, Colorado, 303-486-6400). 1987. TOMES (Toxicology, Occupational Medicine Environmental Series) Plus® v.30. HSDB (Hazardous Substance Data Bank) from NLM (National Library of Medicine)

Northwest Pipeline Corporation. 1990. Map: As Built Alignment (blueline for natural gas pipeline across installation).

Pentec Environmental, Inc. 1995. *Camp Bonneville Endangered Species Survey.* USACE, Seattle District Contract No. DACW67-92-D1001, 0007.

Raedeke Associates, Inc. 1995. *Spotted Owl Survey for 1994-1995 on Ft. Lewis and Camp Bonneville, Washington*. USACE, Seattle District Contract No. DACA67-93-D1016.

Rumonage, Perry. 1972. Aerial Photo, Camp Killpack.

Stalmaster and Associates. 1994. *Baseline Survey of Nesting Raptors of Fort Lewis and Camp Bonneville, Washington, for U.S. Army, Ft. Lewis*. Document No. 9000-030-520..

University of Washington (Lynn L. Larson). 1980. *Cultural Resource Reconnaissance of Forest Management Tracts on Fort Lewis and Camp Bonneville, Washington (Reconnaissance Report No. 34), for USACE, Seattle District.* Contract No. DACW67-79-C-0015.

U.S. Army, and J. Cummings. 1995. *Areas of High Potential for Lead Contamination.*

U.S. Army, Camp Bonneville. 1995. File Information Regarding Permits for Non-Exclusive Use of Firing Ranges and Training.

U.S. Army Corps of Engineers. 1987. *Environmental Assessment, Modifications to Training Facilities, Camp Bonneville, Clark County, Washington.*

———. 1991. Lease Renewal Requirements.

———. 1994. *Statement of Work - Removal of 7 Underground Storage Tanks, Ft. Lewis, Washington.*

———. 1995. *Environmental Project Schedule and Cost Estimates.*

U.S. Army Corps of Engineers, Sacramento District. 1978. *Report on Camp Bonneville Water Well, Clark County, Washington.*

U.S. Army Corps of Engineers, Seattle District (John Dornbos). 1986a. *Archaeological Inventory for Camp Bonneville*.

———. 1986b. Request for Determining Eligibility for National Register and Finding of Non-Eligibility by Washington State Historic Preservation Office.

———. 1988. Cultural Resources Site Survey Record (Site 45-CL-318).

———. 1993. Memorandum Regarding Recommendations for Investigation of Camp Bonneville, Washington.

U.S. Army, 54th Engineering Detachment 1991. Map and Aerial Photo: Camp Bonneville Military Reservation.

U.S. Army, Fort Lewis. 1969. Map: Replace Water Main, Repair and Improve Sanitary Sewer System, Camp Bonneville, Washington.

——— (Gene Schneebeck). 1988. Disposition Form - Repair Sewage Lift Station and Lagoon Pump.

——— (Robert McComas). 1992. Memorandum Regarding Director of Plans and Training, Range Control.

U.S. Army, Ft. Lewis, AFZH-DEQ (Richard Singler). 1971. Camp Bonneville Lease Renewal Requirements.

U.S. Army, Ft. Lewis, AFZH-DEQ (William Kakel). 1992. Use of Camp Bonneville Facilities by Non-Army Agencies.

U.S. Army, Ft. Lewis, AFZH-ENR (Jack McNall). 1984. Memorandum Regarding Offer From Landowners to Sell Land.

U.S. Army, Ft. Lewis, AFZH-PTM-R (Richard Quinn). 1991. Camp Bonneville Lease Renewal Requirements.

_____ (John H. Thomson). 1992. Camp Bonneville Live Fire Maneuver Range Proposal.

U.S. Army, Ft. Lewis, AFZH-V (Royce Pollard). 1987. *Five Year Range Development Plan*.

U.S. Army, Ft. Lewis, AFZH-V-CDR (Gregory Rizor). 1977. Vancouver Barracks and Camp Bonneville Fact Sheet.

U.S. Army, Ft. Lewis, AMNLE-ENG (Fred Larkin). 1963. Disposition Form for Leased State of Washington Land.

U.S. Army, Ft. Lewis, DFE. 1978. *Environmental Impact Analysis, Camp Bonneville, Washington, Ongoing Operations.*

———. 1991a. Map: Camp Bonneville Military Reservation.

——— (Lee Burnett). 1991b. *Record of Environmental Consideration.*

U.S. Army, Ft. Lewis, ENRD (Paul McGuff). 1995. *Cultural Resources Action Plan.*

U.S. Army, Ft. Lewis, ENRD-DEH (James R. Bensen). 1991. Preliminary Assessment Screening, Lease Renewal of Two Washington State Parcels, Camp Bonneville, Washington.

_____ (Randall W. Hanna). 1993. Environmental Compliance Inspections.

_____ (Randall W. Hanna). 1994a. *Environmental Compliance Inspection Report* (January 10, 1994).

_____. 1994b. *Environmental Compliance Inspection Report, Camp Killpack* (January 27, 1994).

U.S. Army, Ft. Lewis, ENRD-DPW (William Van Hoesen). 1993. *Live Fire Maneuver Ranges, Camp Bonneville, Washington, Draft Environmental Assessment.*

U.S. Army, Ft. Lewis, 46th Engineering Command. 1983a. Map: Camp Killpack Drainage, Plate C-1.

———. 1983b. Map: Camp Killpack Drainage, Plate C-2.

U.S. Army, Ft. Lewis, OMD-DPW. 1995. *Transformer PCB Report.*

U.S. Army, Ft. Lewis, Real Estate Branch. 1987. *Environmental Assessment, Modifications to Training Facilities, Camp Bonneville.*

_____. 1994a. *Camp Bonneville Real Property Utilization Report.*

_____. 1994b. Camp Bonneville Real Property Utilization Report. Map: Camp Bonneville.

_____. 1994c. Camp Bonneville Real Property Utilization Report. Map: Camp Killpack.

_____. 1995a. Building Information Schedule.

_____. 1995b. *Inventory of Real Property as of December 6, 1995.*

_____. 1995c. *Real Property Records.*

U.S. Army, Ft. Lewis, Real Property Branch (Lee Burnett). 1991. *Record of Environmental Consideration.*

U.S. Army, Vancouver Barracks. 1944. Utility Plan of Camp Killpack.

_____. 1958. Topographic Map of Camp Bonneville, Washington (showing ranges).

_____. 1959a. Map: Basic Information Map, Camp Bonneville Reservation Boundary and Range Map.

_____. 1959b. Map: Camp Bonneville Reservation Boundary and Range.

_____. 1970. Topographic Map of Camp Bonneville, Washington (showing ranges).

_____ (Jerry Cummings). 1993. *Spill Response Incident Report.*

_____. 1994. *Spill Response Incident Report.*

U.S. Department of Commerce, National Marine Fisheries Services (Merritt Tuttle). 1993. Letter to Randall W. Hanna, Ft. Lewis ENRD, Providing Endangered and/or Threatened Species List.

U.S. Federal Bureau of Investigation, Portland, Oregon Office (Harold W. Heald). 1990. Proposed Federal Bureau of Investigation Firearms Range.

U.S. Geological Survey. 1972. Topographic Map: Camp Bonneville Military Reservation.

———. 1990. Topographic Map: Lacamas Creek, Washington (7.5').

———. 1993a. Aerial Photograph, SW93 14 82 100, June 25, 1993.

———. 1993b. Topographic Map of Larch Mountain, Washington (7.5').

U.S. Geological Survey, Water Resources Branch. 1949. *Well Report.*

VISTA Environmental Information, Inc. 1995. VISTA National Radius Profile.

War Department, O.C.E. 1946. Map: Real Estate, Camp Bonneville, Military Reservation (with tract register through 1964).

Washington State Department of Community Development. 1993. National Historic Landmarks. National Register of Historic Places Determined Eligible for National Register, State Register of Historic Places, Properties Removed From Listing.

Washington State Department of Ecology (Barbara Ritchie). 1990. Letter Regarding No Significant Impact for Construction of the FBI Firearms Range.

_____ (Jerry W. Alb and Ellen Cayaual). 1992. *Municipal Solid Waste (MSW) Facilities Located in the State of Washington.*

_____. 1995a. *Generator Annual Report (AT&T).*

———. 1995b. *Generator Annual Report (Sharp Microelectronics Technology, Inc.*)

———. 1995c. Underground Storage Tank 30 Day Notice.

Washington State Department of Ecology, Southwest Region. 1978. *Water Well Report* (from Hansen Drilling).

Washington State Department of Health, Division of Drinking Water. 1995. DOH Transmitted Letter with Area-Wide Groundwater Monitoring Project (*SOC) Water Quality Report for Synthetic Organic Compound.*

Washington State Department of Natural Resources (Brian Boyle). 1989. Lease Contract.

_____. 1990. Vancouver - Washington State Public Lands Quadrangle.

_____. 1991a. Orthophoto Map, NE¼ of T2N, R3E, Clark County.

_____. 1991b. Orthophoto Map, SE¼ of T3N, R3E, Clark County.

_____. 1994a. Relative Earthquake Hazard Map for the Vancouver, Washington, Urban Region.

———. 1994b. *Washington State Major Public Lands.*

Washington State Department of Natural Resources, Office of Archeology. 1994. List of Reports/Surveys.

Washington State Division of Geology and Earth Sciences. 1994. Relative Earthquake Hazards Maps for Vancouver, Washington, Urban Region.

Washington State Office of Archaeology and Historic Preservation (John Woodward). 1993. Historic Property Inventory Form.

Woodward-Clyde Federal Services (Scott McPherson). 1995. Notes From Site Overview Meeting with Jerry Cummings.

———. (Wendy Oresik). 1996. Memorandum to Camp Bonneville, Washington BRAC Cleanup Team Regarding Basis of Parcel Category Designation Change.

APPENDIX A

COMMENT RESPONSE PACKAGE

RESPONSES TO COMMENTS ON THE
CAMP BONNEVILLE, WASHINGTON
DRAFT ENVIRONMENTAL BASELINE SURVEY REPORT
DATED MARCH 15, 1996

APPENDIX A
COMMENT RESPONSE PACKAGE

Appendix A presents the comments Woodward-Clyde Federal Services received on the *Camp Bonneville, Washington Draft Environmental Baseline Survey Report*, dated February 7, 1996, and the *Camp Bonneville, Washington Draft Final Environmental Baseline Survey Report*, dated November 27, 1996, and the responses to these comments.

The comments have been typed verbatim and may include misspellings, grammatical errors, format inconsistencies, internal agency numbering systems, etc. Each comment and response has been sequentially numbered (A-1, A-2, A-3, etc., for comments on the draft report and B-1, B-2, B-3, etc., for comments on the draft final report). This numbering system is used to reference previous comments or a response that may clarify a previously addressed issue.

The comments have been organized by agency and are separated by sections (A.1, A.2, A.3, etc., for comments on the draft report and B.1, B.2, B.3, etc., for comments on the draft final report). The comments are presented in the following order:

- Installation
- U.S. Environmental Protection Agency
- State of Washington
- U.S. Army Forces Command
- U.S. Army Environmental Center
- U.S. Army Corps of Engineers
- Other Agencies and Organizations

A.1 RESPONSES TO INSTALLATION COMMENTS ON THE DRAFT EBS REPORT

A.1.1 RESPONSES TO FORT LEWIS COMMENTS ON THE DRAFT EBS REPORT

ENTITY: Fort Lewis

INDIVIDUAL: Jane Craft

TITLE: BRAC Environmental Coordinator

DATE: July 26, 1996

Comment A-1:

1. acronyms
   Please include the following:
   WAC = Washington Administrative Code

Response:

The text has been revised as requested.

Comment A-2:

2. p. 4-1
   The Environmental Condition of Property chart given on this page is based on the 1993 definition, is it not?
   Please replace with an updated version...would the chart from the BCP Guidance Plan be more appropriate?

Response:

A major impact of the 1995 *BCP Guidebook* on the EBS process is the exclusion of petroleum and petroleum derivatives from the definitions of Categories 2 through 7. U.S. Army guidance requires petroleum storage and release to be disclosed in the Finding of Suitability to Transfer (FOST). To facilitate future FOST preparation, the DA BRAC office, in February 1996, directed the BRAC 95 EBS process to proceed based on the 1993 *BCP Guidebook* guidance.

Comment A-3:

3. p. 2-1

Existing Documents... This would be true for all the Fort Lewis BRAC '95 sites...
Could you provide a cross-reference for the location of these documents. Where can we find them if we should need to access there references? e.g., COE Sacramento, Fort Lewis Real Property Office. At the installation facility manger's office...

Response:

Comment noted. Final disposition of documents reviewed and archived has not been resolved.

Comment A-4:

4. p. 4-2, sec 4.2.1

There is a back-filled former sewage lagoon in what is now being called the "meadows" area. I cannot easily determine whether this lagoon has been sited in the DEBS in this section. Was the meadows area a wetland, previously?

Response:

The information regarding the former sewage lagoon has been included in Section 4.2.11 of the Draft Final EBS Report. Information is not available regarding former wetlands, and a wetland survey has not been conducted at Camp Bonneville.

Comment A-5:

5. p. 4-4, sec 4.2.6

line 4...A building previously located north of Range 7.

Response:

The text has been revised accordingly.

Comment A-6:

6. p. 4-4

line 5...Associated with this previous gas chamber is the potential for buried chemical kits. This aspect will be investigated along with the UXO potential.

Response:

The text has been revised accordingly.

Comment A-7:

7. sec 4

Why is the HW Accumulation site not discussed? Bldg 4476...

Response:

The use of Building 4476 is discussed in Sections 3.3 and 3.4.1. It is not discussed in Section Four because there is no known or suspected contamination.

Comment A-8:

8. sec 4

Why are the HM storage areas at CB not discussed in this section?

Response:

The hazardous materials storage areas are not discussed in Section Four because they were not identified at the time the EBS was conducted as known or potential sites of contamination, which Section Four is intended to discuss. No changes to the text have been made.

Comment A-9:

9. p. 4-8, sec 4.5.1

bullet at top of page...This UST has been cited to be 5K gal capacity in the DSAR and 500 gal here. According to the facility manager, this UST was a system consisting of 2 tanks, 1 a 275 gal AST and 1 a 275 UST, connected to form one system. Please cite the correct arrangement.

Response:

The text has been revised accordingly.

Comment A-10:

10. p. 4-8, sec 4.5.3

Add to the listing of planned actions:

- CS building-evaluation, decontamination, and demolition
- Lead contamination evaluation and remediation
- HW accumulation site closure

Response:

The text has been expanded to include the information provided in Comment A-6.

Comment A-11:

11. p. 5-4, Parcel 14(7)

1st line... Buildings 1983 and 1962...I think this building was misquoted as 1963? This has been corrected on a more recent insert!!

Response:

The revised text is correct.

Comment A-12:

12. p 5-4, Parcel 15(7)
    It appears to me that this parcel was given two separate parcel #s? #15(7) and 22(7)?

Response:

The reviewer is apparently referring to the original text of the Draft EBS Report. Some text was replaced by revision pages that were to be substituted in the report. Parcel 15(2) is for Building 1864 and Parcel 22(2) is for Building 4126.

Comment A-13:

13. Sec 3
    Are buildings 2950, 2951, and 2953 the Ammunition Storage Point (ASP)? Why is the ASP not included in the assessment for cleanup and decommissioning?

Response:

Buildings 2950, 2951, and 2953 are the Ammunition Storage Point. These buildings are identified together as parcel 7Q-X(P), qualified for potential UXO. This area will be included in the U.S. Army's UXO program for Camp Bonneville.

Comment A-14:

14. DEBS

Was the Local Reuse Committees contacted for information on CB? They have alot of information on the property...

Response:

The Local Reuse Committees were not contacted because they were not identified by the U.S. Army as a source of information.

Comment A-15:

15. Any building built before 1940 will need to be assessed according to Section 106 of the National Historic Preservation Act. This will include the building under category 7.

Response:

Comment noted.

A.1.2 RESPONSES TO FORT LEWIS COMMENTS ON THE DRAFT EBS REPORT

ENTITY: Fort Lewis

INDIVIDUAL: G.E. May

TITLE: Environmental Protection Specialist

DATE: July 26, 1996

Comment A-16:

1. 3.4.1, pg 3-8
   The 1000 gal diesel fuel AST is left out of the Hazardous Material table.

Response:

Section 3.4.1 does not address petroleum storage unless the petroleum product is a hazardous waste. Petroleum is not considered a hazardous material. USTs are covered in Section 3.4.3, and ASTs will be added to this section.

Comment A-17:

2. 3.4.3, pg 3-9
   This should read, one 275 gal LUST, and one 275 AST which contained diesel fuel for equipment refueling.

Response:

The text has been revised accordingly.

Comment A-18:

3. 3.5, pg 3-10
   Lacamus, Main stem, North and East Forks, Buck, and David Creeks should all be listed as sensitive areas.

Response:

As stated in Section 3.5, complete surveys of sensitive environments have not been conducted. The text has been revised to suggest that riparian and wetland portions of the installation might be considered sensitive environments because of the species they support.

Comment A-19:

4. 4.1, pg 4-1

The two tanks, one AST and LUST were removed in 1995. Soil samples were collected during this closure. the results were...a table of sample results would be helpful here.

Response:

The results for three soil samples have been provided in the Draft Final EBS Report. The site had not been remediated at the time the EBS was conducted.

Comment A-20:

5. 4.2.9, pg 4-5

Include the 1000 gal tank with the cement containment structure here. This new AST is located 10 yards north of the old LUST/AST site.

Response:

The 1,000-gallon AST was not identified as a potential source of contamination, which is the focus of this section. The text has not been revised.

Comment A-21:

6. 4.5.1

Second bullet. Soil sampling was performed, and, again, the tanks were one 275 AST and one 275 LUST.

Response:

The text has been revised to include the referenced information.

Comment A-22:

7. general comment

Don't forget to include the new landfill sites that where just recently discovered (as per phone con between Jerry Cummings and Bill Graney). Note: This information was given to Jerry by an anonymous person.

Response:

The text has been revised to include the recently identified former sewage pond, suspected drum burial site, and suspected disposal site in Sections 4.2.11, 4.2.12, and 4.2.13.

A.2 RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE DRAFT EBS REPORT

A.2.1 RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 10 COMMENTS ON THE DRAFT EBS REPORT

ENTITY: U.S. Environmental Protection Agency, Region 10

INDIVIDUAL: Kathleen Stryker

TITLE: Remedial Project Manager

DATE: July 16, 1996

Comment A-23:

General

EPA does not concur with the categorization on UXO properties as qualified parcels. Since release of ordnance related compounds (which are regulated under CERCLA) due to incomplete combustion of ordnance may have occurred at these sites in the past, they are more appropriately labeled CERFA category 7, requiring additional evaluation.

If lead based paint, asbestos, pesticides, PCBs, radon or radiological hazards are present at a property in intact vessels of structures, EPA agrees that this would not warrant classification of the site in one of the CERFA categories. If, however, evidence exists that release of these substances to the environment has occurred, additional evaluation would be necessary and the property should be classified as a 6 or 7. The classification of such properties instead as "qualified" is misleading to the public giving the impression that it has been confirmed that no CERCLA regulated contaminants are present.

The classification of a property as "qualified" as opposed to a CERFA category will not ease property transfer if there is reason to believe that a release has occurred.

Response:

We do not concur that potential UXO areas should be Category 7. Property that was used as intended for military training or operations in which residual UXO, ordnance fragments, and/or explosive materials are present or may be present has been identified and documented in the EBS report. The U.S. Army is actively implementing a UXO program. Prior to transfer or lease, a Finding of Suitability to Transfer or Lease (FOST or FOSL) will be prepared to determine whether, and how, to proceed.

A distinction is made between LBP or ordnance fragments and other lead sources in the EBS report. A distinction is also made between ACM and raw asbestos. The approach used to identify and delineate the presence of LBP and ACM has been developed by the U.S. Army, EPA, various states, and other regulatory agencies over two previous rounds of base realignment and closure (1991 and 1993). Their presence has been documented in the EBS report; however, their presence does not necessarily preclude the U.S. Army from transferring or leasing the property. Prior to transfer or lease, a FOST or FOSL will be prepared to determine whether, and how, to proceed.

A distinction is made in the EBS report between the presence of PCBs within equipment, such as transformers, that have not leaked and PCBs in soil from leaking equipment. PCBs in soil from leaking equipment are considered a CERCLA issue and are reflected as such in the EBS report. The EBS report has also identified serviceable PCB-containing equipment remaining on the property in accordance with the Toxic Substances Control Act of 1976.

Pesticides are consumer products if applied in a manner consistent with the standards for licensed application. When applied in a manner that was not consistent with standard practice, pesticides were considered a CERCLA issue in the EBS report.

Classification as "qualified" is not intended to ease property transfer. The U.S. Army is making every effort to ensure protection of human health and the environment. When appropriate, parcels "qualified" for the presence of ACM, LBP, PCBs, radon, UXO, and radiological hazards will be remediated or abated based on future intended property use.

Comment A-24:

Specific

1. p. 1-1, 1.1. Overview, 5th paragraph: Disagree with paragraph as worded. Paragraph should clarify that asbestos, lead based paint, PCB's, radon, UXO, radiological hazards and pesticides are normally addressed under CERCLA if a release to the environment has occurred. These substances are listed hazardous wastes under 40CFR 302.4 of CERCLA. These are therefore inappropriately labeled as "non-CERCLA contamination substances" unless this clarification is made.

Response:

We assume the comment refers to paragraph 3. Please see the response to Comment A-23.

Comment A-25:

2. Section 2: No comments

Response:

Comment noted.

Comment A-26:

3. Section 3: No comments

Response:

Comment noted.

Comment A-27:

Section 4

4. P. 4-1, 4.1, second bullet: The last sentence of this bullet is confusing. It states that there is potential for subsurface soil or groundwater contamination and then appears to state that there is not.

Response:

The text has been reworded for clarity. There was no evidence of environmental impacts at this location.

Comment A-28:

5. p. 4.2.1 to 4.2.10: It would be helpful to include the BRAC parcel numbers in these descriptions for cross-referencing with the CERFA table and Sampling and Analysis Recommendations.

Response:

The text has been revised accordingly.

Comment A-29:

6. p. 4-6, 4.4: See general comment above relating to the designation of non-CERCLA qualified parcels.

Response:

See the response to Comment A-23.

Comment A-30:

Section 5

Table 5-1

7. Parcels 2, 7, 8, 9, 10 should be labeled as 7, requiring additional investigation since it has not been established at this time whether ordnance related compounds, which are regulated under CERCLA, have been released at these sites as a result of incomplete combustion of ordnance.

Response:

We do not concur. Property that was used as intended for military training or operations in which residual UXO, ordnance fragments, and/or explosive materials are present or may be present has been identified and documented in the EBS report. The U.S. Army is actively implementing a UXO program. Prior to transfer or lease, a FOST or FOSL will be prepared to determine whether, and how, to proceed.

Comment A-31:

8. Which are the lead based paint parcels which are believed to have lead based paint in soils as stated in Section 4.2.10? Is it assumed that all buildings with lead based paint have surrounding lead contaminated soils? If so this is a release of a CERCLA regulated substance (lead) and these parcels should be labeled 6 or 7. (re: parcels 13, 14, 15, 16, 18, 22).

Response:

The buildings with LBP issues are denoted on the CERFA map (Figure 5-1) with an asterisk and listed in Table 5-1b. Any building qualified for LBP may have associated LBP in soil. DOD will survey and abate LBP in buildings and potentially contaminated soils, as necessary, based on future intended property use in accordance with DOD guidance. The parcel labels have not been changed. Please see the response to Comment A-23.

Comment A-32:

9. Soil at Parcels 15 and 22 should be sampled to verify that no release of pesticides has occurred and so should be labeled as 7.

Response:

We do not concur. No evidence of releases at either Building 1864 or 4126 was observed during the EBS. It should not be assumed that because a building was previously used for storage of hazardous substances or petroleum products, further evaluation is needed. The designation of these buildings as Category 2 is appropriate.

Comment A-33:

10. Soil at Parcel 19 should be sampled to verify that no release of auto fluids or petroleum has occurred and so should be labeled as 7.

Response:

We do not concur. Please see the response to Comment A-32. In addition, Building 4475B is a modern hazardous materials shed, and Building 4476A has a secondary containment structure.

Comment A-34:

11. Fig 5-2. It is not clear under what authority that 600 gallons was established as a reporting limit for petroleum products.

Response:

OSWER Directive 9345.0-09, EPA 540/F-94/32, PB 94-963249, dated April 19, 1994, allows for the inclusion of this reporting limit.

A.3 RESPONSES TO STATE OF WASHINGTON COMMENTS ON THE DRAFT EBS REPORT

A.3.1 RESPONSES TO WASHINGTON STATE DEPARTMENT OF ECOLOGY COMMENTS ON THE DRAFT EBS REPORT

ENTITY: Washington State Department of Ecology

INDIVIDUAL: Chris Maurer

TITLE: Project Manager

DATE: July 16, 1996

Comment A-35:

1. Page 3-4: The table entries for sodium chloride may be intended to read sodium hypochlorite.

Response:

We concur. The text has been revised accordingly.

Comment A-36:

2. Page 3-10, section 3.4.7: It is unclear if the original sewage system was backfilled with an inert material as planned. This should be verified.

Response:

We concur. The text has been revised accordingly.

Comment A-37:

3. Page 3-11, section 3.5: The paragraph should be expanded to state that 33 raptors were sighted at Camp Bonneville, including red-tailed hawks, Northern harriers, great horned

owls, turkey vultures, and a raven, as well as the osprey named in the paragraph, according to the report cited.

Response:

We concur. The text has been revised accordingly.

Comment A-38:

4. Page 3-12, paragraph 1: The five target species found should be identified.

Response:

We concur. The text has been revised accordingly.

Comment A-39:

5. Page 5-5, paragraph 2: The paragraph should be clarified to indicate that the strip referred to is three to four feet in width, not length. This comment also applies to page 5-10, paragraph 1, and Table 5-1.

Response:

The reviewer's reference to page 5-5 is not clear (page 5-10 is also in the original text of the Draft EBS Report but not in the revision pages that were to be substituted in the report). The dimensions of the strip of stressed vegetation at Building 4475 (Parcels 18(7) and 21(7)) have been clarified in all references.

Comment A-40:

6. Page 5-6: Section 5.1.8 also occurs on page 5-11.

Response:

We apologize for the confusion on the report revisions. Pages 5-8 through 5-11 of the original text were to have been discarded when the revision pages were inserted.

Comment A-41:

7. Figure 5-2: label 15(2)HS may be intended to read 15(7)HS.

Response:

The figure and text are correct and in agreement. (Invalid comparison of original text with revised text and figures.)

Comment A-42:

8. Figure 5-3: Label 21(7) may be intended to read 21(7)PR.

Response:

We concur. The text and figure have been revised accordingly.

Note: Washington State Department of Ecology comments 9 through 12 are directed toward the Sampling and Analysis Recommendations (SAR) Report and will be addressed in the Final SAR Report. Therefore, they were not included in this Comment Response Package.

Comment A-43:

Appendix B

The following comments apply only to Appendix of the Environmental Baseline Survey Report. Additional comments may be sent later.

1) Page B-4, line 2: Is the cemetery referenced, which was established in 1894, and is shown on the map on page B-13, still in existence and readily identifiable as a cemetery?

Response:

The cemetery still exists and is readily identifiable. Note that the title reference states, "excepting 2 acres for 'public cemetery.'" The cemetery in not located on Camp Bonneville property.

Comment A-44:

2) Page B-5, line 3: The abbreviated description should reference the mineral rights reservation listed in the title transfer.

Response:

We concur. The text has been revised accordingly.

Comment A-45:

3) Pages B-50, B-69, B-80, and B-82: There are evident gaps (paragraphs or pages missing) from the photocopies of the legal documents.

Response:

We concur. The missing information has been provided.

Comment A-46:

4) Pages B-90, B-91, B-93, and B-94: The pages are illegible.

Response:

We apologize for the poor quality of the materials in Appendix B. They were reproduced as received. More legible reproductions have been provided in the Draft Final EBS Report.

A.4 RESPONSES TO U.S. ARMY FORCES COMMAND COMMENTS ON THE DRAFT EBS REPORT

ENTITY: U.S. Army Forces Command

INDIVIDUAL: Joseph H. Plunkett (contact Victor M. Bonilla for further information)

TITLE: Chief, Base Realignment and Closure Division, DCSPIM

DATE: June 28, 1996

Comment A-47:

1. Page: 3-8
   Section three; Hazardous Material chart 1st and 2nd lines

   What are these numbers or what do they relate to (2,4,5-T:2,4-D ... etc.)

Response:

These abbreviations are chemical nomenclature or product names for pesticides and herbicides and are common usage. 2,4,-D is 2,4-dichlorophenoxyacetic acid, DDT is 4,4-dichlorodiphenotrichloroethane, and 2,4,5-T is 2,4,5-trichlorophenoxyacetic acid. The table has been revised to provide the full names as well as the abbreviations. These terms have also been added to the acronym list.

Comment A-48:

2. Page 5-4
   Section five:

   Paragraph states that there is no documentation of spills for the aboveground tanks at parcel 13(2)PS nor an indication of stressed vegetation. This would indicate that classification as Category 2 or 3 would be more appropriate than Category 7.

Response:

No response. (The reviewer is apparently comparing the original text of the draft report with the revision pages that were to be substituted in the report. The comparison is not valid because of the changes made to the text and map).

Comment A-49:

3. *BRAC Parcel number and label 16(7)* What Category 7?

Response:

Parcel 16(7) in the Draft EBS Report, page 5-5 and Figure 5-2, refers to Building 1834. (Due to the renumbering of parcels for the Draft Final EBS Report, this parcel is 10(7) in this report.) Tear gas is mildly toxic and an irritant; therefore, it is considered a hazardous substance for this EBS. Because there is a known release of tear gas in the building that has not been cleaned up, this parcel has been designated as Category 7.

Comment A-50:

4. Page 5-6:
   Section 5.1.8; by bullet 3

   Since this would be a "major" concern for this site, shouldn't this have more details?

Response:

This bulleted item is a statement of the guideline for assigning a parcel qualifier to areas potentially containing UXO. We see no need for the definition to be expanded further.

A.5 RESPONSES TO U.S. ARMY ENVIRONMENTAL CENTER COMMENTS ON THE DRAFT EBS REPORT

ENTITY: U.S. Army Environmental Center

INDIVIDUAL: Paul E. Wojciechowski

TITLE: LTC, CM, Chief, Restoration and Oversight Branch

DATE: May 13, 1996

Comment A-51:

1. Page 1-8, para. 1

Check spelling of Lackamas Creek. Compare with fig. 101.

Response:

Text and maps have been checked for correct spelling and revised as needed.

Comment A-52:

2. Page 2-4, para. 4, line 2

This seems to say that 1991 aerial photos were noted in a 1987 Army reference. Correct?

Response:

The text has been revised.

Comment A-53:

3. Page 3-6, para. 3

Maps from prior to 1958 would be useful, since the installation operated since 1919.

Response:

The referenced maps are the only maps available.

Comment A-54:

4. Page 3-11, para. 6

Check dates; the 1995 spotted owl survey probably wasn't documented in a 1994 report.

Response:

The text has been revised.

Comment A-55:

5. Page 4-1

This and the following pages mention various sites and their locations. Possibly reference the map in this EBS where these sites can be found.

Response:

We concur. The map has been referenced in the Draft Final EBS Report.

Comment A-56:

6. Page 6-1

This EBS seems to provide the best summary of all the environmental documentation available now for Camp Bonneville. It will likely be used for its reference section to get more detail on the various topics. Some of the references could have more information in order to be able to locate them. For example, where a person's name is used, suggest also listing the person's affiliation, and the city and state. If a consultant prepared the document, suggest also listing the Govt. agency that funded the work.

Response:

The Section Six references have been reviewed and revised, as necessary. Additional information has been included, when available.

Comment A-57:

7. Appendix B

Some of the pages, or portions of pages, are in reversed type, and unreadable. Some of these sections are crossed out. If this is intended, suggest crossing out all such sections with a gold line.

Response:

We apologize for the poor quality of the materials in Appendix B. They were reproduced as received. More legible reproductions have been included in the Draft Final EBS Report.

Comment A-58:

8. Sampling Recommendations. The costs noted here could be somewhat underestimated, based on our experience with similar sites in the past. Several work items, which have been needed at similar sites in the past, may be needed at this site to provide a field investigation that meets CERCLA and regulatory requirements. Such items include: (1) UXO clearance of the sampling sites and access lanes, (2) sampling equipment decontamination and IDW disposal, and (3) analytical QA/QC, such as EPA CLP program. Suggest that the assumptions clarify whether the stated costs include these items.

Response:

This comment will be addressed in the Final SAR Report.

Comment A-59:

9. Figure 5-1

Parcel 1(1) has several noncontiguous pieces. Suggest assuring that each of them has a label.

Response:

We respectfully do not agree. BRAC Parcel 1(1) is contiguous. (Qualified parcels overlay BRAC category parcels and do not affect their contiguity.)

Comment A-60:

10. Table 5-1

Qualified parcels (like 2, 7-11) also note the possibility of lead contamination. Since the qualified parcels are really CERFA category 1, raising the possibility of lead contamination may seem inconsistent. Possibly lead that remains from use of small arms ammo according to its intended purpose might not be considered release or disposal, and then you can delete the mention of lead since there's no indication of any disposal of ammunition, only intended use. Also, these parcels are not discussed in chapter 5, which they should be. Also, if qualified parcels are actually CERFA category 1, should we find a way to label them as such, or else explain that they are CERFA I in the text. EPA and the State are being asked to concur with the Army's CERFA parcels, but previously I believe they did not review the qualified parcels since we had not labeled them as CERFA "clean".

Response:

BRAC categorized parcels and qualified parcel designations are separate and overlaying. All portions of the BRAC property have been categorized based on the presence or absence of hazardous substances or petroleum products. The referenced parcels are qualified because of the likely presence of ordnance fragments (which includes bullet fragments). The parcel may be designated as Category 1; however, areas of the parcel are also qualified for the presence of ordnance fragments. The reference to lead from ordnance fragments as a contaminant has been deleted from the text since its presence occurred from intended use.

The qualified parcels identifying former firing ranges will be discussed in Section 5.1.8, including the rationale for not considering lead from small arms as a release or disposal.

Comment A-61:

11. Table 5-1

Is the former gas mask training chamber that was burned in range 7 noted on the CERFA map as a possible hazardous substance release like the current mask training chamber is?

Response:

The location of the former gas mask training building in Range 7 is not identified as potentially having hazardous substances because CS gas residues are very unlikely to remain since they decompose readily (Micromedex, Inc. 1987).

Comment A-62:

12. Section 4.2

Consider adding the parcel number to each of these sites in order to reference them to the text in chapter 5 and table 5-1.

Response:

We agree that it is difficult to cross-reference the sites discussed in Section Four with the BRAC parcel descriptions in Section Five. We have added the site names from Section 4.2 to the parcel descriptions in Section Five and have added Section Five parcel numbers to text in Section 4.2.

Comment A-63:

13. Section 5.1.8 Section is repeated. The first occurrence is within the descriptions of the BRAC parcels.

Response:

We do not concur. Section 5.1.8 occurs once and only on pages 5-6 and 5-7. (This comment may relate to confusion between original and replacement pages.)

Comment A-64:

14. table 5-1

It is noted in the EBS that Parcel 21 had evidence of soil contamination from a UST. This information may be considered definite enough to justify a category 6 designation for this parcel.

Response:

We do not concur. Because an evaluation of petroleum concentrations in soil has not been performed, it is not known whether site remediation will be required; therefore, this parcel has been designated as Category 7.

Comment A-65:

15. Page 5-10, para. 2

Where are parcels 30 and 42? If these numbers aren't used, we should note this so they don't possibly appear as an oversight.

Response:

No response. (The reviewer is apparently referring to the original text of the draft report. Some text was replaced by revision pages that were to be substituted in the report.)

Comment A-66:

16. Page 5-6

Are parcel numbers 23-27 in the category 7 section, but is listed as category 2.

Response:

Please see the response to Comment A-65.

Comment A-67:

17. Page 5-4

Parcel 13 is shown in the category 7 section, but is listed as category 2.

Response:

No response. (The reviewer is apparently comparing the original text of the draft report, page 5-4, to Table 5-1 included in the revision pages that were to be substituted in the report. The comparison is not valid because most parcel numbers changed.)

Comment A-68:

18. Table 5-1

Parcels 28 and higher are discussed in chapter 5, but are not shown in the table, or on figures 5-1 through 5-3.

Response:

Please see the response to Comment A-67.

Comment A-69:

19. Table 5-1

Consider if the two demolition areas should be added as category 7 CERFA parcels, due to possible explosives release. If these areas had a large amount of open detonation activity, soil contamination by explosives would be a reasonable possibility. Explosives open burning activities, if they also occurred at these two sites, could also cause such contamination. If it is known that these areas should be category 1, then consider adding additional justification. On first reading, the term "demolition area" implies something other than category 1.

Response:

The report has been revised to designate the two demolition areas as Category 7 parcels.

Comment A-70:

20. General

The attached tract map and tract register was provided by the North Pacific Division. It may be useful to add it to the EBS. Such tract maps were included in all the CERFA reports in 1992.

Response:

The tract map and tract register have been received, reviewed, and evaluated. They did not provide additional information and, therefore, have not been included in the Draft Final EBS Report.

Comment A-71:

21. Page 2-4

CERCLA requires the Army to search local and state agencies for reasonably obtainable aerial photos. The scope of work requires this of the contractor. The report needs to describe the extent to which this was done to show we complied with this legal requirement.

Response:

Local and state agencies were contacted for aerial photographs. The text has been expanded to describe the aerial photograph search effort conducted.

Comment A-72:

22. Page 2-6

CERCLA and the scope of work require visual inspections of basically all parts of the installation and its improvements. To demonstrate compliance with this, suggest providing more detail as to the areas actually visited.

Much of the range area may not have been visited due to inaccessibility; however, due to the possibility that some dumping activity could have occurred, we would try to do a comprehensive visit of the entire area. Please arrange for a flyover of the entire site. This was

performed for many of the CERFA reports of the BRAC I installations, and was often arranged at minimal cost through a nearby Army installation with rotary wing capability. Ft. Lewis, in fact, provided such support for the Umatilla Depot in Oregon. Since Ft. Lewis commands Bonneville, perhaps USACE can arrange for a similar flyover of Camp Bonneville. Such flyovers during BRAC I CERFA were designed for just this situation, where access to the installation's back areas, and the adjacent property, was limited.

Also, piping and such are improvements requiring inspection in the EBS. Please indicate if the wastewater and potable water treatment facilities were inspected. Also, please locate utilities drawings and either reference or include them in the EBS.

Response:

The text has been revised, as requested, to include additional details of the visual inspections conducted.

In addition to site inaccessibility, a comprehensive visual inspection of the ranges could not be conducted due to safety issues (UXO). The site inspection team was not allowed to enter these areas. However, inspections were conducted from the main roads through the range areas. Permission to conduct a flyover inspection has been refused by the Commanding Officer of Camp Bonneville. The U.S. Army intends to conduct a comprehensive inspection of the ranges after UXO issues have been addressed.

The wastewater (Section 3.4.7) and potable water facilities (Section 3.3) were inspected, but because piping was underground, inspection was not possible. Utility maps are referenced in Section Six, which will also be reviewed for completeness and revised as needed.

Comment A-73:

23. General

Commenter did not find the CERFA letter report that was required to be passed.

Response:

Comment noted. A CERFA Letter Report was completed.

A.6 RESPONSES TO U.S. ARMY CORPS OF ENGINEERS COMMENTS ON THE DRAFT EBS REPORT

A.6.1 RESPONSES TO U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT COMMENTS ON THE DRAFT EBS REPORT

ENTITY: U.S. Army Corps of Engineers, Seattle District

INDIVIDUAL: Ginny Dierich, P.E.

TITLE: Chief

DATE: May 15, 1996

Comment A-74:

1. EBS Executive Summary. The table in this executive summary is confusing. Unless the guidance clearly requires the table be prepared with these headings recommend trying to clarify the table headings. "Acreage minus Qualified Acreage" holds no specific meaning to me. I can add up the acreage in each of the asbestos, lead and UXO qualified columns to get the number under "Total Qualified", but again, the column holds no specific meaning to me. Recommend creating new column titles for columns 3 and 4.

Response:

The table is compatible with CERFA guidance. The intent of the table is to provide the reader with a sense of how many acres are available for immediate transfer (total of Categories 1 through 4 in column 3) and how many acres will need to have environmental issues addressed (total of Categories 1 through 7 in column 2). The other columns are provided for completeness of information.

Comment A-75:

2. EBS Figure 1-1. I cannot differentiate well the difference between creeks and roads. The legend shows solid lines as roads, but the figure has many solid lines that appear in form to look like creeks or rivers. Verify figure.

Response:

The figure has been revised for clarity.

Comment A-76:

3. Aerial Photographs. Historically, we have found aerial photos are available going back many years and are quite useful for locating sites not readily available through records. Recommend expanding the aerial photo interpretation by working with the Corps PM to locate.

Response:

Several potential sources of aerial photographs were investigated, including the USACE. The text has been expanded to describe the aerial photograph search effort conducted.

Comment A-77:

4. Par 2.1.1 Existing Documents. The last item in the table lists a UST 30 day notice. This suggests additional documentation should be available.

Response:

The Washington State Department of Ecology files contained no further information at the time the EBS was conducted.

Comment A-78:

5. EBS Par 2.1.7 The title search item #19 lists paper and pulp companies and a power company as prior owners. Address potential land use/contamination associated with their ownership.

Response:

Potential contamination from uses by prior owners has not been identified and is unlikely, as the properties were most likely used for timber resources. The text has been revised accordingly.

Comment A-79:

6. EBS Par 4.4.7 Pesticide, Herbicide and Fungicide Usage. While it is likely the case at this time in history, usage has not always been limited to manufacturer recommended usage. Also, the EBS should look into staging areas where these Pesticides were mixed or prepared for use.

Response:

Comment noted. Information was not available regarding historical use and application practices prior to 1968. The text has been expanded to discuss uses from 1968.

The text has been revised to state that small-scale mixing and loading of pesticides was conducted at Building 4475, but no spills or other releases were reported for this area.

Comment A-80:

7. EBS General. Recently a Draft Preliminary Assessment for the Vancouver Barracks was prepared by the Corps of Engineers for Fort Lewis. Vancouver Barracks included a Hospital and Barracks. The research of the PA did not find any information on where the wastes from the site were disposed. Consideration should be given to a potential for the Hospital wastes to have been disposed somewhere on the Camp Bonneville property.

Response:

Information gathered at the time the EBS was conducted did not indicate that any medical wastes from the Vancouver Barracks were disposed of at Camp Bonneville.

Comment A-81:

8. EBS. Par 3.3 and 3.4.1 The present and PAST history is essential to the understanding of the environmental issues associated with these sites. An evaluation of the storage history of these buildings should be completed. As written we only know about what they store today.

Response:

The information available regarding the buildings at Camp Bonneville suggests that their use did not change over the years, as indicated by the text. Presently, all evidence indicates that no buildings stored substances that impacted the environment. The text has been clarified for emphasis of known historical uses.

A.6.2 RESPONSES TO U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT COMMENTS ON THE DRAFT EBS REPORT

ENTITY: U.S. Army Corps of Engineers, Seattle District

INDIVIDUAL: Dennis A. Fischer, P.E.

TITLE: Chief, Geotechnical and Instrumentation Section

DATE: May 15, 1996

Comment A-82:

1. Executive Summary, paragraph 6, sentences 3&4: The text identifies 3834.62-acres as categories 1-4 and 5.38-acres as categories 5-7. In reality, there are no category 3, 4, 5, or 6 parcels according to the ES Table. Recommend the text be clarified as to exactly what categories are represented.

Response:

Although there are no Category 3, 4, 5, or 6 parcels at Camp Bonneville, the intent was to indicate how many total acres were available for transfer or lease (Categories 1 through 4) and how many total acres were not available for transfer (Categories 5 through 7).

Comment A-83:

2. Figure 1-1: It is very difficult to follow the creeks illustrated on the drawing. Recommend tightening the density, straightening the symbols (especially Lackamas Creek), and possibly changing the symbols of the stream channel symbols.

Response:

We concur. The figure has been revised accordingly.

Comment A-84:

3. Section 2.1.2, Table, Department of Ecology, SW Regional Office (LUST): "This database lists sites ... known to be leaking." Change "sites" to "LUSTs."

Response:

We concur. The text has been revised accordingly.

Comment A-85:

4. Section 3.4; table; Range Numbers, Use, and Weapons Type; Range No. R-7: "1000-inch Machine Gun?" Check this designation for accuracy.

Response:

The designation, 1,000-inch Machine Gun, was used correctly. The 1,000 inches is the range, not the machine gun.

Comment A-86:

5. Figure 5-1, BRAC Parcel Label Descriptions, (P): Change "Inverified" to "Unverified."

Response:

We concur. The figure has been revised accordingly.

Comment A-87:

6. Figure 5-1, BRAC Parcel Label Descriptions, Legend: Recommend changing symbol for creeks to differentiate them from roads (denser pattern, possibly alternating dots and dashes [light]).

Response:

We concur. The figure has been revised accordingly.

Comment A-88:

7. Figure 5-1, BRAC Parcel Label Descriptions, Installation Property Boundary: Symbol does not match what is shown on the map.

Response:

We concur. The figure has been revised accordingly.

Comment A-89:

8. Figure 5-2, CERFA Map, Bonneville Cantonment: Text in EBS states that 20 ASTs exist in the Bonneville Cantonment. The map shows 23. Rectify.

Response:

The actual number of ASTs is 24. The appropriate changes have been made.

Comment A-90:

9. Figure 5-3, CERFA Map, Killpack Cantonment: Text in EBS states that 2 ASTs exist in the Killpack Cantonment. The figure shows 3 ASTs. Rectify.

Response:

We do not agree. The text (Page 4-5, Section 4.2.9) states that three ASTs exist in the Camp Killpack Cantonment.

A.6.3 RESPONSES TO U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT COMMENTS ON THE DRAFT EBS REPORT

ENTITY: U.S. Army Corps of Engineers, Seattle District

INDIVIDUAL: Victor Ramos

TITLE: Engineer, Engineering and Technology Section

DATE: May 15, 1996

Comment A-91:

1. Based on the information provided, it seems like a general understanding of the environmental conditions at Camp Bonneville is provided. However, further investigation will be required.

Response:

Comment noted.

Comment A-92:

2. To provide a more accurate assessment of the report, the Community Environmental Response Facilitation (CERFA) guidance and the Department of Defense (DoD) BRAC Cleanup Plan (BCP) guidebook would be needed to further evaluate the information in the report.

Response:

Comment noted.

Comment A-93:

3. A Pollution Prevention Plan provided by AGI Technologies for Vancouver Barracks and Camp Bonneville (Contract No. DACA67-93-D-0017, Delivery Order 1, April 18, 1995) was not referenced and will probably provide more information about the environmental condition at Camp Bonneville. I have a partial copy that only provides information on Vancouver Barracks.

Response:

Comment noted. This document has been requested from the USACE.

Comment A-94:

4. The Sampling and Analysis recommendation seems to general for the Corps to accept. Details on the Data Quality Objectives need to be determined.

Response:

Comment noted. The comment will be addressed in the Final SAR Report.

Comment A-95:

Comment has been withdrawn at commentor's request.

A.6.4 RESPONSES TO U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT COMMENTS ON THE DRAFT EBS REPORT

ENTITY: U.S. Army Corps of Engineers, Seattle District

INDIVIDUAL: Stephen J. Meith

TITLE: Certified Industrial Hygienist

DATE: May 25, 1996

Comment A-96:

1. Page 1-5 abbreviations is somewhat unclear at this time since where radon is found, radon daughters will also be found along with radon precursors. It may be better include naturally occurring radioactive materials (NORM) and non-NORM radioactive areas.

Response:

For the purposes of the EBS report, radon has been identified as a non-CERCLA issue, and if present, would result in a qualified parcel that would be mitigated under a U.S. Army program. The abbreviation "R" is defined only as radon and is not intended to represent daughter products.

Comment A-97:

2. I suggest that a "Batwing" impact map be developed for the impact zones in order to gain a better insight as to where munitions fragments are likely to reside.

Response:

The purpose of the EBS report is to identify areas that may have been impacted by UXO or UXO fragments, which is accomplished by the range safety fans illustrated in Figure 3-1. The U.S. Army has a UXO program that will investigate potential UXO areas.

Comment A-98:

3. Bldgs 1930 and 1963, as well as the storage structures (especially the pre WWII structures) specified in the Killpack cantonment facilities, needs more information as to what was stored within the structures.

Response:

All available information pertaining to Buildings 1930 and 1963 was incorporated into the Draft EBS Report.

Comment A-99:

4. Just a heads up that it may be necessary to confirm the presence/absence of dioxins within the structures which were used for storing grounds keeping materials as well as pesticides other than the three mentioned, or at least the possibilities should be investigated.

Response:

Comment noted.

Comment A-100:

5. It would also be advisable to attempt to verify whether or not Vietnam era CW agents such as Agent Orange, were stored within the structures denoted as being storage facilities.

Response:

All available information regarding the storage or use of chemicals, including chemical warfare agents, was incorporated into the Draft EBS Report.

Comment A-101:

6. It should be noted that vehicles such as trucks, and automobiles were quite rare during WWII, and therefore it is possible that even the vehicle maintenance structure listed as Bldg. 4475, may have stored such ubiquitous pesticides as DDT, chlordane, etc. Also the wooden structures may have very well contain residues of halogenated insecticides to protect against such chewing insects as carpenter ants, termites and the like. It should also be noted that even up through the 1960s that

DDT aerosol spray cans were readily available to soldiers for use in barracks, and for pest control in mess halls.

Response:
Comment noted; however, all available information regarding the storage or use of chemicals was incorporated into the Draft EBS Report.

Comment A-102:
7. Also regarding asbestos containing materials, asbestos was reportedly used in soldier's mattresses ostensibly to prevent fires as a result of persons falling asleep while smoking in bed. (Just another heads up)

Response:
Comment noted. The barracks were qualified for asbestos in the Draft EBS Report. The U.S. Army will consider the potential for release of asbestos from mattresses in its asbestos survey and abatement program.

Comment A-103:
8. Although there is no record of Medical Training taking place on the site, in all probability at least one of the structures was a medical treatment facility (medical clinic) especially since the Camp was in operation prior to WWI.

Response:
Based on the records search conducted for this EBS, no information was found regarding the existence of a medical treatment facility at Camp Bonneville.

Comment A-104:
Concern over the locations and quantities of the PCBs contamination. There does not seem to be a rhyme and reason for all of the locations.

Response:

Potential PCB-contaminated areas were not identified during the EBS investigation at Camp Bonneville. Please clarify.

A.6.5 RESPONSES TO U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT COMMENTS ON THE DRAFT EBS REPORT

ENTITY: U.S. Army Corps of Engineers, Seattle District

INDIVIDUAL: Greg Gervais

TITLE: Chemical Engineer

DATE: May 15, 1996

Comment A-105:

General Comments:

1. Although I've never reviewed one of these documents, and I've never worked on an Army facility, it seems like this document doesn't go into enough detail, even for a preliminary report. For instance, the interview with the on-site person likely yielded the interviewer with names of other former personnel that could provide more information on the installation. But such personnel, if they do exist, were not interviewed for this report. There are countless unknowns about the site. Although a more thorough site assessment is planned, I feel that a little more digging below the surface would have yielded a much more informative and useful report.

Response:

The purpose of the EBS is to determine the environmental condition of the property for realignment or closure. The EBS focuses on the base closure property and adjacent property that may impact the environmental condition of the base closure property. It included a detailed search and review of all available information and interviews of installation personnel. The on-site person interviewed, who has 20 years of experience with the installation, provided names of former employees. Only one former installation personnel could be located. All available information obtained from the records search and interviews was included in the EBS report. Please provide specific references to the "unknowns" indicated in the comment.

Note: USACE Comment number 2 is directed toward the SAR Report and will be addressed in the Final SAR Report.

Comment A-106:

3. The appendix with the information on the previous ownership of the property was illegible. In addition, the pages were lopsided, with *[sic]*

Response:

We apologize for the condition of the title search records; however, the records were reproduced as found. More legible reproductions have been provided in the Draft Final EBS Report.

Comment A-107:

Specific Comments:

1. §1.3; Petroleum:

Please change to say " ..., including but not limited to aviation ..."

Response:

We respectfully disagree. The language used is the same language used in CERCLA 120(h)(4).

Comment A-108:

2. Page 2-3; Table in RCRIS Section:

Please change to say "This database contains all RCRA facilities, ..."

Response:

We concur. The text has been revised accordingly.

Comment A-109:

3. Page 2-3; LUST Table:

Please define LUST and change contents section to reflect that the tanks, not sites, leak. It may be clearer to a reviewer not familiar with this terminology if the definition is found where the acronym first appears in the document.

Response:

We concur. The table has been revised accordingly.

Comment A-110:

4. Page 2-4; §2.1.2.2:

Could any significant amount of the "heavy" fuel stains on the ground be related to spills associated with filling the UST or dispensing fuel from the tank?

Response:

The area with heavily contaminated fuel stains on the ground was caused by spills associated with filling and dispensing operations. The text has been revised for clarity.

Comment A-111:

5. Page 3-8; First full paragraph:

Supporting information should be given for the assumption on the mortar range.

Response:

The assumption is based upon interviews with U.S. Army personnel at Camp Bonneville. The text has been revised accordingly.

Comment A-112:

6. Page 4-1; §4.1, first bullet:

Please give the most accurate estimate on the discrepancy between the fuel consumption and the tank filling records.

Response:

The information was not provided at the time the EBS was conducted. The EBS report is not intended to provide details of site investigations. The requested information will likely be generated during the site investigation.

Comment A-113:

7. Page 4-1; §4.1, first bullet:

Is there any reason to believe that truck traffic is not picking up contaminated mud from around the site? Are the other possible contamination sources, besides the two that were identified and received environmental compliance inspections?

Response:

Speculation on this question would not be appropriate. Site contamination issues will be addressed in the site investigation.

The EBS report identifies all contamination sources identified during the EBS site inspection, interviews, and records search activities.

General Comments

Comment A-114:

1) See general comments from initial review comments.

Response:

Comment noted.

Comment A-115:

2) Although this is an EBS, it may support W-C's findings and future remediation recommendations if any sampling data that was reviewed and used in preparing this report were included in a table.

Response:

The intent of the EBS report is to document the environmental condition of the property through an assessment of information obtained through document search and review, interviews, and visual inspections. Such information is included by reference and may be summarized, as necessary, to support the environmental condition of an area of the installation. The source of the information is referenced for the reader who would like additional information. It is not planned at this time to report sampling and analysis details in the EBS report.

Specific Comments

Comment A-116:

1) See specific comments from initial review comments.

Response:

Comment noted.

Comment A-117:

2) Section Four, 4.4; Since this site has been used as a firing range, it is likely that field medical units were stationed at the facility during times of operation. There may be some medical wastes disposed at the site. In addition, it is possible that medical wastes, including radiological wastes, from the Vancouver Barracks site, may have been disposed at this site.

Response:

Records review, interviews, and visual inspections conducted during the EBS did not indicate the presence or likely presence of buried medical wastes at the site. Unfortunately, there is no practical way to investigate or delineate such potential past uses of the property. The identified waste disposal sites at the installation were designated as Category 7.

Comment A-118:

3) Section Four, 4.4.7; Based upon the time period in which the Army used the site (1919-present), it is likely that use of pesticides may be a larger concern than just the fact that, up until 1980, DDT and other pesticides were stored in Buildings 4126 and 1833. It is probable that the Army applied these chemicals to the site, and that there is a possibility for pesticides contamination, due both to general application of the pesticides, as well as improper storage and disposal of these chemicals. Recommend some limited sampling for pesticides (especially organochlorine types) if this has not been done in the past. The Sampling and Analysis recommendation does include some pesticides screening, however, it doesn't appear to include testing at or near the two buildings that stored the pesticides.

Response:

Comment noted. The text has been expanded to state that the past uses of pesticides, herbicides, and fungicides are not well documented. The text has also been expanded to describe pesticide uses since 1968. The U.S. Army plans to conduct testing for pesticides near storage areas.

Comment A-119:

4) Section Five, Figure 5-1; This (and other) figures is not easily to read. Creeks and roads are difficult to identify. Recommend making figures clearer and more legible in the future.

Response:

The figures has been revised for clarity.

Comment A-120:

5) Section Five, Figure 5-2; I am concerned about the PCB contamination. There doesn't appear to be a readily identifiable source of the contamination. In addition, The extent or levels of contamination are not clear since the sampling and analysis data, from which I assume the contamination was discovered, was not included in the EBS. I recommend that this data be provided in the future, so that the contamination can be considered based upon its concentration, extent, etc.

Response:

We request clarification of the comment. PCB contamination was not identified at Camp Bonneville.

Comment A-121:

6) Appendix B; The photocopied deed documents are illegible. The print is blurred and small. Some of the pages include the backwards copies of other documents. Recommend either providing legible copies or not including them and noting that these documents are not legible.

Response:

We apologize for the poor quality of the materials in Appendix B. They were reproduced as received. More legible reproductions will be provided in the Draft Final EBS Report.

Comment A-122:

7) Sampling and Analysis Recommendations, SAR Table 2; On 14(7)HR(P), since I don't know what type of sampling and analysis effort identified the PCB contamination near these buildings, I don't know if additional analyses for PCBs would be necessary. This table does not include a PCBs analysis.

Response:

Comments on the SAR will be addressed in the Final SAR Report.

A.7 RESPONSES TO OTHER COMMENTS ON THE DRAFT EBS REPORT

A.7.1 RESPONSES TO LAND REUSE AUTHORITY COMMENTS ON THE DRAFT EBS REPORT

ENTITY: Land Reuse Authority

INDIVIDUAL: Barry P. Steinberg

TITLE: Not Available

DATE: May 21, 1996

Comment A-123:

1. I note that at the bottom of page one there is no report of any interviews with any of the residents, current or former, in the area of Camp Bonneville. No explanation for this failure is contained in the report.

Response:

Section 4.3 provides an explanation for not conducting comprehensive adjacent property surveys. To elaborate, as is consistent with industry-accepted standards for conducting EBSs, the need for inspection of adjacent properties, which would include interviews of property owners or managers, is based on the use of that property and the potential of environmental impacts to U.S. Army property. Residential, agricultural, forestry, ranching, and recreational uses of adjacent properties are not considered to pose potential environmental threats to U.S. Army property; therefore, inspections or interviews for these properties at Camp Bonneville were not conducted. The property occupied by AT&T on Livingstone Mountain was inspected, and two employees were interviewed. This information has been included in the Draft Final EBS Report.

Comment A-124:

On page 3-6 at the bottom, they indicate that they have identified at least 25 firing ranges dating back to 1958. At the bottom of the next page, they then indicate that they believe that the range FAN encompassed all components of the surface danger zone. My concern is that we know that there has been a rifle range at Camp Bonneville since 1909 and, therefore, there are 49 years of unaccounted activity concerning weapons training. Given that duration and the nature of the activity suspected, it is difficult to understand why there is a belief that the range FAN delineated in Figure 3-1 is accurate or complete. (Figure 3-1 is not included in my package."

Response:

The firing ranges used during the period prior to 1958 were likely much less numerous and smaller than the ranges that were developed later. The U.S. Army maps available show the evolution in the development of ranges over time, which was from a few small ranges close to the cantonments to more larger ranges with greater distribution. Historically, the greatest use of the ranges occurred in the 1960s and 1970s. The period from 1909 to 1927 was likely a period of very light use, as the cantonment facilities were not yet built. Therefore, it is a valid conclusion that the combined range map (Figure 3-1), which comprises approximately 74 percent of the installation property, likely includes all previously used ranges.

Comment A-125:

The last paragraph of Section 3-4 notes that the presence of lead contamination or unexploded ordnance outside the boundaries of the range FAN and impact areas should be considered. In paragraph 3.4.7, we are informed that the site plan in 1987 called for the Bonneville and Killpack septic tanks and leach fields to be pumped out and filled with an inert material, when the sewage treatment system was constructed 1978. There is no statement that in fact was done.

Response:

The areas outside the combined range map area would be considered in a UXO survey.
The text has been revised to include the requested information regarding the septic tanks and leach fields.

Comment A-126:

Paragraph 3.5. There is a disconnect in the second paragraph. It says that a spotted owls survey was performed in 1995 but that the survey did not detect any spotted owls. The attribution for not detecting spotted owls is ENSR Consulting dated 1994. The sequence of events suggests that no owls were detected a year before the survey was performed. This requires clarification. The Stalmaster 1994 Survey of nesting raptors is noted to be incomplete. It appears that the last submission to the natural preservation officer was 1986. This should be updated.

Response:
Comment noted. The text has been revised for clarity.

Comment A-127:
With respect to Building 4475, we need to ascertain when soil remediation at that site will be completed based on the leaking underground storage tank.

Response:
This information will be included in the BRAC Cleanup Plan.

Comment A-128:
With respect to the historic landfills, paragraph 4.2.1, the information is inadequate to make any determination as to environmental concerns at the sites. I recommend that the distance to the water table be determined, and that soil and water samples be obtained.

Response:
We agree that more information is needed. As such, we designated these areas as Category 7 in the Draft EBS Report. Investigation comments will be addressed in the Final SAR Report.

Comment A-129:
In as much as Figure 3.1 was not provided with my copy of the draft, I cannot address the issue of firing range contamination in any meaningful way. With respect to Building 1834, it would be interesting to know what the Army intends to do with the gas mask training chamber. Do they intend to remove it and remediate the soil on site, or are they concluding that there are not

problems there? In paragraph 4.5.3, the planned remediation activities are important. In as much as they identify the asbestos, lead-based paint, underground storage tank and unexploded ordnance issues that need to be more precisely defined, we should follow up with Fort Lewis and ascertain what they are going to do, when they are going to do it, how they are going to do it, and what reports will be available to us as a result.

Response:

Information on cleanup activities will be included in the BRAC Cleanup Plan. The U.S. Army has not concluded that there are no problems at Building 1834. The Draft EBS Report presents the U.S. Army's conclusion that this building needs further evaluation (Category 7).

Comment A-130:

With respect to the parcel designations, the CERFA map, Figure 5.1 was not provided. I am missing pages 5.1 and 5.3. The bottom of 5.1, however, reflects that 3,831.37 acres are uncontaminated. Stated another way, nine acres are contaminated. Given the information with respect to lead-based paint and unexploded ordnance, it is difficult to understand how, except through a process of technical definitions, such conclusion could have been reached. Obviously, the maps, which are missing from this report, are absolutely critical so that we can overlay the impact areas, firing ranges and the areas which they claim have no contamination.

Response:

LBP and UXO are not hazardous substances or petroleum products as defined by CERFA guidance. The seven CERFA categories are classifications based on the environmental condition of the property as affected (or not affected) by hazardous substances or petroleum products. The overlying "qualified" parcels address non-CERCLA environmental or safety issues, which includes LBP and UXO. It is presented in the Executive Summary and elsewhere that 3,840 acres are qualified for non-CERCLA issues.

Comment A-131:

9. On Table 5-1, there are a number of actions slated as abatement for lead-based paint and asbestos. This suggests that a determination has already been made that they are going to remove

them as opposed to merely testing them and determining that no further action is required, as in the case of non-friable asbestos. We need to pin the Army down on what it is they intend to do and the basis for the action they intend to take.

Response:
This information will be included in the BRAC Cleanup Plan.

Comment A-132:
10. Similarly, there are some areas that have been identified for UXO search and removal in FY 1996. However, the number of acres listed appear to be less than 20, which I suspect are far fewer acres that the impact areas that have previously been identified. We should ascertain the rationale for that particular undertaking and, more importantly, why other areas are not being searched for unexploded ordnance.

Response:
This information will be included in the BRAC Cleanup Plan.

RESPONSES TO COMMENTS ON THE
CAMP BONNEVILLE, WASHINGTON
DRAFT FINAL ENVIRONMENTAL BASELINE SURVEY REPORT
DATED NOVEMBER 27, 1996

B.1 RESPONSES TO INSTALLATION COMMENTS ON THE DRAFT FINAL EBS REPORT

B.1.1 RESPONSES TO FORT LEWIS COMMENTS ON THE DRAFT FINAL EBS REPORT

The BRAC Environmental Coordinator did comment on the Draft Final EBS Report.

B.1.2 RESPONSES TO FORT LEWIS COMMENTS ON THE DRAFT FINAL EBS REPORT

ENTITY: Fort Lewis

INDIVIDUAL: Grady May

TITLE: Environmental Protection Specialist

DATE: January 10, 1997

Comment B-1:

1. Page 5-1, Paragraph 5.0
   The latest edition of the DOD BCP guidance is dated Fall 1995.

Response:

A major impact of the 1995 BCP *Guidebook* on the EBS process is the exclusion of petroleum and petroleum derivatives from the definitions of Categories 2 through 7. U.S. Army guidance requires petroleum storage and release to be disclosed in the FOST. To facilitate future FOST preparation, the DA BRAC office, in February 1996, directed the BRAC 95 EBS process to proceed based on the 1993 BCP *Guidebook* guidance.

Comment B-2:

2. Page 5-5, Paragraph 4
   The investigation has been performed and it has been determined that the building contains no hazardous residue. Furthermore, the building will be torn down as soon as we receive clearance from the Washington SHPO.

Response:

The BRAC parcel description for this parcel has been updated to reflect the results of the investigation. The parcel was changed from Category 7 to Category 1 and the description of the BRAC parcel has been moved from Section 5.1.7 to Section 5.1.1. In addition, corresponding changes have been made to Table 5-1a, Figure 5-1, and the Executive Summary.

Comment B-3:

3. Page 5-7, Paragraph 2

This parcel, 15(7)PR should be designated as **CERFA Category 5**.

Response:

The text has been revised accordingly. This parcel description has been moved from Section 5.1.7 to 5.1.5, with appropriate text added. In addition, corresponding changes have been made to Table 5-1a, Figure 5-1, and the Executive Summary.

Comment B-4:

4. Page 5-9, Paragraph 2

Sub-title, demolition Area 2, should be added under CERFA Map Location.

Response:

The text has been revised accordingly.

Comment B-5:

5. Table 5-1a

Parcel 15(7)PR should reflect that mitigation is underway.

Response:

The text and table have been revised accordingly.

Comment B-6:

6. Table 5-1a

Add former CS building burn site to this table and to Parcel Designations.

Response:

The CS gas training burn site has been added as BRAC parcel 10(7)HR(P).

B.2 RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE DRAFT FINAL EBS REPORT

B.2.1 RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 10 COMMENTS ON THE DRAFT FINAL EBS REPORT

ENTITY: U.S. Environmental Protection Agency, Region 10

INDIVIDUAL: Harry Craig

TITLE: Remedial Project Manager

DATE: Not Identified

Comment B-7:

1. As was noted in the draft report, EPA Region 10 does not concur with the categorization of UXO and releases of lead based paint as non-CERCLA substances. Munition fillers such as secondary explosives and metals are CERCLA hazardous substances, and have verified carinogenic and non-carcinogenic toxicity values in the EPA IRIS and HEAST data bases. Drinking Water Health Advisories for Munitions Compounds have been jointly developed by EPA and DOD (EPA, 1995). Analysis of munitions compounds such as secondary explosives, metals, and pyrotechnics are part of EPA SW-846 Test Methods. EPA Region 10 considers all primary explosives, bulk high explosives, and secondary explosives in soil greater than 10% (100,000 mg/kg) to be RCRA Characteristic Waste for reactivity (40 CFR 261.23; Sisk, 1992; EPA, 1993).

Response:

Comment noted. Unresolved issues will be forwarded with the Final CERFA Letter Report to the Office of the Deputy Assistant Secretary of the Army.

Comment B-8:

2. UXO clearance operations, such as open burn/open detonation (OB/OD), may increase the amount of munitions residues released into the environment. Munitions residues will be required to meet CERCLA risk based cleanup levels for soil and water media (EPA 1993, 1995). It is EPA's expectation that all on-site and off-site actions for UXO and releases of lead based paints (LBP) will be fully compliant with CERCLA and RCRA requirements.

Response:

Property that was used as intended for military training or operations in which residual UXO, ordnance fragments, and/or explosive materials are present or may be present has been identified and documented in the EBS report. The U.S. Army is actively implementing a UXO program. Prior to transfer or lease, a FOST or FOSL will be prepared to determine whether, and how, to proceed. Unresolved issues will be forwarded with the Final CERFA Letter Report to the Office of the Deputy Assistant Secretary of the Army.

Comment B-9:

3. Page ii, Executive Summary - LBP and UXO Qualified Acreage should be qualified as CERFA Category 6 or 7.

Response:

Comment noted. Please see the response to Comment B-7.

Comment B-10:

Page v, Table of Contents, Section 4.4 - See General Comment #1.

Response:

Comment noted. Please see the response to Comment B-7.

Comment B-11:

Page 3-10, Table 3-4 - The munitions compounds in the Weapons Used will be need identified for a Contaminants of Concern (CoC) list for the Firing Ranges.

Response:

Comment noted; however, this information is not necessary to fulfill the requirement of the EBS according to CERFA and BCP guidance.

Comment B-12:

6. Page 4-8, Section 4.4 - See General Comment #1 and Specific Comment #3.

Response:

Please see the response to Comment B-7.

Comment B-13:

7. Page 4-11, Section 4.5.3 - See General Comments #1 and #2.

Response:

Please see the response to Comments B-7 and B-8.

Comment B-14:

8. Page 5-1, Section 5.1 - See General Comments #1 and #2.

Response:

Please see the response to Comments B-7 and B-8.

Comment B-15:

9. Page 5-9, Section 5.1.8 - Munitions residues in soil, such as secondary explosives, metals, and pyrotechnics compounds are not UXO, but are releases of CERCLA hazardous substances. Also see General Comment #2.

Response:

Please see the response to Comment B-8.

B.3 RESPONSES TO STATE OF WASHINGTON COMMENTS ON THE DRAFT FINAL EBS REPORT

B.3.1 RESPONSES TO WASHINGTON STATE DEPARTMENT OF ECOLOGY COMMENTS ON THE DRAFT FINAL EBS REPORT

ENTITY: Washington State Department of Ecology

INDIVIDUAL: Christopher Mauer, P.E.

TITLE: Project Manager, Toxics Cleanup Program

DATE: December 5, 1996

Comment B-16:

1. The State of Washington Department of Ecology concurs with the submitted draft Final Environmental Baseline Survey. However, the Department of Ecology conditions its concurrance by reserving the right to require institutional controls (fencing, signage, land use limitations, etc.) and/or remediation by the receiving party prior to concurring in the leasing or transfer of part or all of Camp Bonneville to a party other than the United States Army.

Response:

Comment noted.

Comment B-17:

2. Page 3-6, Table 3-2, Building 4378: Since weed whacker is a current trade name for a specific type of motorized weed cutter, it may be unfamiliar to a person reading this document in the future. Consideration could be given to using a different descriptive term.

Response:

The text has been revised accordingly.

B.4 RESPONSES TO U.S. ARMY FORCES COMMAND COMMENTS ON THE DRAFT FINAL EBS REPORT

The U.S. Army Forces Command did not comment on the Draft Final EBS Report.

B.5 RESPONSE TO U.S. ARMY ENVIRONMENTAL CENTER COMMENTS ON THE DRAFT FINAL EBS REPORT

The U.S. Army Environmental Center did not comment on the Draft Final EBS Report.

B.6 RESPONSES TO U.S. ARMY CORPS OF ENGINEERS COMMENTS ON THE DRAFT FINAL EBS REPORT

B.6.1 RESPONSES TO U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT COMMENTS ON THE DRAFT FINAL EBS REPORT

ENTITY: U.S. Army Corps of Engineers

INDIVIDUAL: Victor Ramos

TITLE: Environmental Engineering and Technology Section

DATE: December 15, 1996

Comment B-18:

1. Table 5.1.b: In the last column titled Remediation Mitigation, you list survey and abatement as the process that will be taken to address the lead based paint in buildings issue; it seems too early to be making this determination. I do not see the need to have to remove all the lead based paint from these buildings especially if the buildings will be demolished. I am not aware of any requirements for removing all the lead based paint in these buildings. The remediation action would better be addressed in the Clean Up Plan rather than the EBS. Please provide some rational and clarification of this issue.

Response:

Table 5-1b has been modified to indicate that abatement will be conducted "as required."

Comment B-19:

2. Comment A-33: It is not clear to me why you do not concur. Parcel 19 was given a Category 7 in your report, as recommended by EPA yet, you state that you do not concur. Your map indicates parcel 19 as "19(7)HR(P)" which means (according to your legend in figure 5-1) Parcel 19, Category 7, with possible hazardous substance release or contamination.

Response:

The response to Comment A-33 is incorrect. Parcel 19 has been designated as a Category 7 parcel. No documented release or potential impacts were observed during the EBS visual inspection; however, because of the potential for a release, soil sampling of this area is planned.

Comment B-20:

3. Comment A-42: This is a Department of Ecology Comment, not an EPA comment. Please change your note accordingly.

Response:

The text has been revised accordingly.

Comment B-21:

4. Comment A-80: Your research might not have indicated any waste but, it would make sense to me that this type of waste could have been placed in these landfills. At this point since there is no documentation available it seems to me that it is speculation on whether medical waste was or was not placed in the landfills. Assuming it was and structuring the investigations to consider that medical wastes may be in the landfills would seem prudent.

Response:

Each of the four landfills is designated as a Category 7 parcel requiring additional evaluation; therefore, it is not necessary to speculate.

Given the location of Vancouver Barracks to Camp Bonneville, and that there is no evidence at this time to support that medical wastes were disposed of at Camp Bonneville from Vancouver Barracks, it would only be speculation to indicate the presence of medical waste disposal at Camp Bonneville. Each of the four landfills is designated as a Category 7 parcel requiring additional evaluation. Medical wastes will be addressed if they are encountered during the investigation of the landfills at Camp Bonneville.

Comment B-22:

5. Comment A-95: Please remove this comment. This is not an EBS related comment and should not have been placed in this document. I do not understand why this information was given to you and how it was construed to be a comment.

Response:

The comment has been withdrawn at the commentor's request.

B.6.2 RESPONSES TO U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT COMMENTS ON THE DRAFT FINAL EBS REPORT

ENTITY: U.S. Army Corps of Engineers

INDIVIDUAL: Greg Gervais

TITLE: Chemical Engineer

DATE: December 16, 1996

GENERAL COMMENTS

Comment B-23:

1. The draft final EBS is a more usable document now that WC has incorporated additional information, as well as made the document clearer and more readable.

Response:

Comment noted.

Comment B-24:

2. When will we receive revised copies of the draft SAR?

Response:

The Final SAR Report is a planning document, compared to the EBS, which is required to identify the environmental condition of the property for transfer or lease. The Final SAR Report will be sent approximately two weeks after the Final EBS Report.

Comment B-25:

3. In at least one instance (landfills), there appears to be a inconsistency in the text that is related to adding new information to the EBS without ensuring consistency with the text. WC should ensure that the EBS remains consistent, making it a usable document for both internal project use and public use.

Response:

We concur. The Final EBS Report has been reviewed for consistency.

Comment B-26:

Some of the "comments" received from the Corps by WC were not comments, but were additional information to be provided by technical reviewers to Corps management at the manager's request. They were not meant for WC's consideration as comments, and were not properly removed from the comments forwarded to WC. It is proper for WC to ask the commentor about a comment when a comment is received that does not seem appropriate (e.g. "I am interested in working on this project..."). Removing these comments at the commentor's request would be appropriate.

Response:

See the response to Comment B-22.

SPECIFIC COMMENTS

Comment B-27:

1. Cover Letter: I am a bit concerned about how badly the schedule slipped for submittal of the draft final EBS to the Corps, since it was delivered on 26 November 1996, but it was initially scheduled for delivery in August or September, then October. I hope that whatever difficulties that caused the delays will be handled better in the future.

Response:

Schedule delays for transmittal of the Draft Final EBS Report were due to delays at the U.S. Army Forces Command and were beyond Woodward-Clyde's or the USACE's control. The USACE Project Manager (Mike Nelson) was aware of schedule issues, and any adjustments in schedules were developed jointly by Mike Nelson and Woodward-Clyde.

Comment B-28:

2. Executive Summary, page I: How does the FBI firing range fit in with the "mission" of Camp Bonneville? If it doesn't, then why was it allowed to be constructed and used by the FBI?

Response:

The FBI firing range does not fit in with the mission of Camp Bonneville. As indicated in Section 3.2 of the report, Camp Bonneville was used until the late 1980s by local and civic and nonprofit organizations, which included use by the State Highway Patrol for pistol training.

Comment B-29:

3. Section 1.1, page 1-1: In the second paragraph, include the Corps in the list of parties that submitted comments to WC on the draft EBS, since the Corps did provide comments, but the Corps is neither installation personnel nor the regulatory community. Also, the LRA is not a regulator, so also state that it provided comments.

Response:

The sentence has been modified to state that comments on the Draft and Draft Final EBS Reports have been incorporated from federal, state, and local government agencies, as appropriate.

Comment B-30:

4. Section 4.1.1, page 4-1: Please verify that "... remediation at this location had not been conducted at the time of the EBS." It might be helpful to define the "time" of the EBS, since the typical person may define that as the time from initiating work on the EBS up until the time when the EBS is finalized.

Response:

This paragraph has been updated to reflect that soil removal was conducted in fiscal year 1997, but closure documentation has not been finalized.

Comment B-31:

5. Section 4.2.1, page 4-2: The number of landfills listed here is not consistent with Section 3.4.2. Resolve discrepancy.

Response:

Section 3.4.2 has been changed to indicate that there are four historic landfills at Camp Bonneville to be consistent with Section 4.2.1.

Comment B-32:

6. Section 4.2.1.3, page 4-3: Jerry Cummings was involved with the construction of this landfill and has information regarding its size, when it was constructed, and what types of materials were placed in it. This information was available to WC during the EBS, and its availability was told to Geoff Compeau by me when we met on 12 June 1996 during a BCT meeting.

Response:

Jerry Cummings was contacted regarding information about the trash burial site. Section 4.2.1.3 has been revised to include a description of the estimated size and duration of use of the burial site.

Comment B-33:

7. Section 4.2.2., page 4-3: The burn area may be located adjacent to the "third" landfill, but this section of the EBS calls that landfill the "Trash Burial Site." Keep terminology consistent for clarify.

Response:

The referenced landfill in Section 4.2.2 has been changed to "trash burial site."

Comment B-34:

Section 4.2.12 and 4.2.13, page 4-7: It is important to note that the "anonymous" person that reported each of these potential sites was the same person.

Response:

Section 4.2.13 has been revised to indicate that it was the same individual that anonymously reported that he buried the drums.

Comment B-35:

9. Section 5.1, page 5-1: In the first sentence, the punctuation is incorrect (colon and what follows). Please revise for readability.

Response:

The punctuation in the referenced sentence is correct as written. It should be noted that semi-colons are appropriately used in place of commas when the separate clauses include commas.

Comment B-36:

10. Comment Response Package, Appendix A: Please delete Comment A-95 and response. Also, see previous Corps comments and feedback regarding this section. Corps feedback was sent to WC on or about 8 October 1996.

Response:

The comment has been withdrawn at the commentor's request.

B.6.3 RESPONSES TO U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT COMMENTS ON THE DRAFT FINAL EBS REPORT

ENTITY: U.S. Army Corps of Engineers

INDIVIDUAL: Mary Gin Carrell

TITLE: Environmental Protection Specialist

DATE: January 3, 1997

Comment B-37:

1. Generally, I think the document is pretty good. I could tell quite a bit of research was done to put it together.

Response:

Comment noted.

Comment B-38:

2. Pages 3-3 through 3-8. Should there be a map showing the location of each structure listed on the Tables? I think it would make it clearer. The insets on Figure 5-1 are not that readable because the print is small.

Response:

Additional maps can be provided by Woodward-Clyde at the request of the USACE. However, displaying the locations of all the structures mentioned on pages 3-3 through 3-8 on the maps in this report is not necessary for the purposes of the EBS. Font size in the insets of Figure 5-1 has been increased for readability.

Comment B-39:

3. Page 3-12, Section 3.4.2, Paragraph 2. Should the EBS mention the fourth landfill?

Response:

Section 3.4.2 has been changed to indicate that there are four historic landfills at Camp Bonneville to be consistent with Section 4.2.1.

B.6.4 RESPONSES TO U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT COMMENTS ON THE DRAFT FINAL EBS REPORT

ENTITY: U.S. Army Corps of Engineers

INDIVIDUAL: Dina R. Ginn

TITLE: BRAC Project Manager, USTs

DATE: January 23, 1997

Comment B-40:

1. Pg. i, Executive Summary. The final sentence of paragraph one (1) would be confusing to a reader unfamiliar with the CERA guidance.

Response:

Comment noted. Additional explanation is presented Section One.

Comment B-41:

2. Pg. i, Executive Summary. Paragraph four (4) does not indicate the FBI presence on site. Therefore the reference in 2.1.6 regarding access to FBI facilities is confusing to the reader.

Response:

A statement in paragraph four of the Executive Summary has been added to indicate the presence of the FBI.

Comment B-42:

3. Pg. 3-16, 3.5 Sensitive Environments. Information in paragraph four conflicts. "The survey detected five target species, none of which are federal or state listed as threatened or endangered" Later "Among the two plant species, one is state-endangered . . . ." Reconcile conflict.

Response:

Paragraph four of Section 3.15 has been modified to clarify that there were no federal or state listed threatened or endangered animal species.

Comment B-43:

4. Pg. 3-17, 3.5 Sensitive Environments. Paragraph two mentions the cemetery. This does not appear to be identified on any maps in the EBS.

Response:

Based on additional review of the document referenced in this section, it has been determined that this cemetery is actually located at Fort Lewis. The reference to this cemetery has been deleted from the Final EBS Report.

Comment B-44:

5. Pg. 4-1, 4.1.1 Building 4475 LUST. Samples were analyzed for WTPH-D (diesel) not total TPH. The Washington State cleanup level is 200 ppm for diesel.

Response:

The text has been revised accordingly.

Comment B-45:

6. Pg. 4-9, 4.4.1 Asbestos-Containing Material. OSHA and WISHA utilize the year 1980 to defined presumed asbestos containing material. The use of 1985 is more conservative, however, may cause conflict with inspections and remedial strategies based on the regulations. (Pg. 5-9, 5.1.8 as well)

Response:

The text has been revised accordingly. Please note, however, that this does not affect the remediation strategies since, as indicated in Tables 3-1 through 3-3 of the EBS report, no buildings were constructed in the 1980s.

Comment B-46:

7. Pg. 4-11, 4.5.1 Past Remediation Efforts. Correct discussion of the 4475 UST analytical to WTPH-D (diesel).

Response:

The text has been revised accordingly.

Comment B-47:

8. Pg. 5-1, 5.1 Parcel Designations, Paragraph 2 discusses "Small point sources of contamination or storage, such as UST's were delineated by circular 0.25 acres parcels . . . ." The text of the earlier sections only discusses AST in regard to the 0.25 delineation. Reconcile.

Response:

Both ASTs and USTs are discussed in early sections. However, since ASTs were more prevalent at Camp Bonneville, the example of a point source (i.e., "such as") was changed to ASTs.

Comment B-48:

9. Pg. 5-2, 5.1.1 Category 1 Parcels. Provide a general description of how CERFA Map Locations should be read, (X-axis, Y-axis). This is not obvious to all readers.

Response:

The coordinates (as expressed in x,y coordinates) identify the BRAC parcel label location. As discussed in Section 5.1, the coordinate system is used to facilitate the location of a parcel and parcel boundaries do not follow grid lines.

Comment B-49:

10. Pg. 5-2, 5.1.1 7(2)PS . . . For ease of locating, indicate the items within the Bonneville or Killpack Cantonment insets.

Response:

References to the Camp Bonneville Cantonment and Camp Killpack Cantonment have been added to Section Five text and tables, where applicable.

APPENDIX E

CHAIN OF TITLE REPORT
BRAC PROPERTY
CAMP BONNEVILLE, WASHINGTON

REPORT PARCEL	DATE TRANSFERRED	ACREAGE	OWNER	OWNERSHIP MAP REFERENCE	COMMENTS
1	7/5/1918	~160	Wm. C. Hazard Estate	130/566	Prior ownership does not indicate any potential for environmental concern.
2	7/3/1918	~40	W. S. Wood and Melissa J. Wood	130/607	Prior ownership does not indicate any potential for environmental concern.
3	7/8/1918	40	Albert Munsell	130/608	Prior ownership does not indicate any potential for environmental concern.
4	7/8/1918	40.29	S. Rasmus Jensen and Katharine Jensen	130/609	Prior ownership does not indicate any potential for environmental concern.
5	7/5/1918	20	James A. Munsell and Cora B. Munsell	130/610	Prior ownership does not indicate any potential for environmental concern.
6	7/17/1918	20	E. D. Stadter and Amy E. Stadter	130/611	Prior ownership does not indicate any potential for environmental concern.
7	7/5/1918	160	A. Burnham and Ella W. Burnham	130/612	Prior ownership does not indicate any potential for environmental concern.
8	7/9/1918	40	Andrew Rutkowski and Josephine Rutkowski	130/612	Prior ownership does not indicate any potential for environmental concern.

APPENDIX E
(Continued)

REPORT PARCEL	DATE TRANSFERRED	ACREAGE	OWNER	OWNERSHIP MAP REFERENCE	COMMENTS
9	7/5/1918	40	Thomas C. Ward	130/613	Prior ownership does not indicate any potential for environmental concern.
10	7/20/1918	20	J. L. McCulloch	130/613	Prior ownership does not indicate any potential for environmental concern.
11	7/8/1918	160	Earl W. Smith and Jessie E. Smith	130/620	Prior ownership does not indicate any potential for environmental concern.
12	7/5/1918	85	Joseph D. Dubois and Ethel M. Dubois	130/624	Prior ownership does not indicate any potential for environmental concern.
13	7/5/1918	160	Nellie L. Gustin and Robert Gustin	130/625	Prior ownership does not indicate any potential for environmental concern.
14	7/5/1918	~640	Inga Nuessler and Ernest Nuessler	131/9	Prior ownership does not indicate any potential for environmental concern.
15	5/25/1918	160.4	B.H. Nicholas et al.	131/132	Prior ownership does not indicate any potential for environmental concern.
16	7/8/1918	160.4	Jackson Land Credit Co.	131/133	Prior ownership does not indicate any potential for environmental concern.
17	9/23/1918	160.4	Pluma M. Brown et al.	131/134	Prior ownership does not indicate any potential for environmental concern.

APPENDIX E
(Continued)

REPORT PARCEL	DATE TRANSFERRED	ACREAGE	OWNER	OWNERSHIP MAP REFERENCE	COMMENTS
18	10/20/1919	160	R.B. Montague and G.D. Montague	131/356	Prior ownership does not indicate any potential for environmental concern.
19	6/24/1919	700+	A.K. Anderson et al.	133/1	Prior ownership does not indicate any potential for environmental concern.
20	6/26/1918	120	R.A. Power et al.	133/30	Prior ownership does not indicate any potential for environmental concern.
20a	7/15/1951	840	State of Washington	556/114	Prior ownership does not indicate any potential for environmental concern.